EUB Alberta Energy and Utilities Board

2003 Year in Review

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For additional copies of this publication
or other EUB publications, contact
EUB Information Services
640 - 5 Avenue SW
Calgary, Alberta T2P 3G4

Telephone: (403) 297-8190
Fax: (403) 297-7040
Web site: <www.eub.gov.ab.ca>

The EUB's *Year in Review* provides Albertans with information about what the EUB did in the past year, along with an overview of activity in Alberta's energy and utilities sectors.

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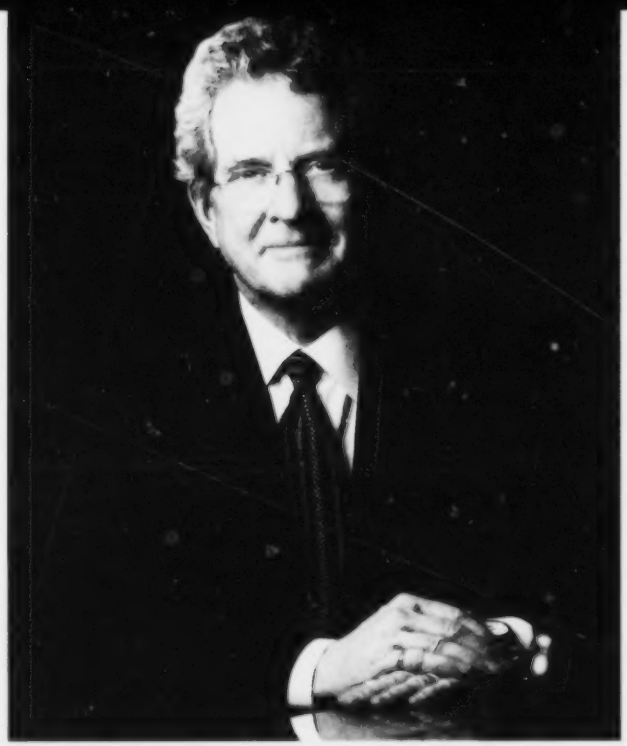

Neil McCrank, Chairman

In private business, when an organization gets to a particular size, hits sales targets, or reaches a certain level of market capitalization, it's often recognized for those achievements and the momentum they foster to ensure that growth continues.

At a public institution, momentum is harder to achieve, more difficult to measure, and a daunting challenge to sustain. The EUB is one of those rare public agencies that has gathered momentum over the past few years, and this year's *Year in Review* reflects that accomplishment.

At the heart of this kinetic achievement is the EUB's absolute commitment to serving the public interest. In that vein, "working for Albertans" is a concept that is central to our operations. It underscores the responsibility we have to ensure that the industries we regulate are capable of successfully operating their businesses without compromising public safety.

Momentum is also elusive and difficult to quantify. It's a feeling that permeates the environment of a building or organization. It manifests itself in the quality of the work done and in the confidence staff have in the organization they work for.

There are always a number of initiatives or projects that are winding down, starting up, adapting to change, or operating much the way they have for years. But throughout that mix, there is a sense of purpose and drive. This is what momentum means to the EUB.

In 2003, there were many projects and initiatives that exemplified this concept.

- The EUB is committed to providing a regulatory environment that allows the safe development of Alberta's resources. On this front, the ongoing work that grew out of the 87 recommendations made by the Advisory Committee on Public Safety and Sour Gas has changed the way the EUB regulates industry and has proven that our commitment to continually assess our processes and look for ways to improve them is crucial to maintaining our effectiveness as a regulator.

- We recognize the changing face of Alberta's oil industry and are taking steps to ensure that it remains vibrant and well regulated in the future. There were two key events in 2003 that demonstrated our commitment to this ideal. The first was establishing a regional office in Fort McMurray to accommodate current and future growth in oil sands projects and production. The second

was undertaking the *Athabasca Wabiskaw-McMurray Regional Geological Study* to address concerns regarding natural gas production in oil sands areas and to ensure that Alberta's resources are protected and managed for future generations of Albertans.

- The EUB will continue to play a key role in regulating aspects of the electricity and natural gas sectors that remain regulated, such as electric transmission lines, as well as reviewing rate applications from companies that provide service to customers that have not signed competitive contracts for natural gas or electricity. The year ahead also marks the start of an expansion of this role for the EUB, regulating this default-service function for municipally owned utilities, such as EPCOR in Edmonton and ENMAX in Calgary.

- We must sustain a work environment that attracts and retains talented staff. The heart and soul of the EUB, and the source of its momentum, are its staff. Without this talented team, none of the achievements mentioned above would be possible. The EUB offers a fair and competitive compensation structure and benefits package for our employees to ensure that this team will remain strong and that our momentum will not falter.

The EUB has established itself as a world leader in regulatory excellence. The combination of a strong team, clear vision, and effective implementation should sustain this momentum in the years ahead.

EUB Board Members

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Front row: Gordon Miller, Bonnie McGinnis (Secretary to the Board), Neil McCrank, John Nichol

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The EUB is a provincial, quasi-judicial agency that regulates Alberta's energy resources and utilities. Although the EUB works independently from the rest of government, our agency falls under the Alberta Minister of Energy. The EUB has approximately 800 staff in 14 locations across the province, with our main office in downtown Calgary.

The mission of the EUB is to ensure that the discovery, development, and delivery of Alberta's resources and utilities services take place in a manner that is fair, responsible, and in the public interest.

The EUB also regulates investor-owned natural gas, electric, and water utilities and, as of January 1, 2004, certain municipally owned electric utilities to ensure that customers receive safe and reliable service at just and reasonable rates.

The EUB implements regulations based on policies set by the Government of Alberta.

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WHO WE ARE

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WHAT WE DO

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OUR CONSERVATION MANDATE

The first step toward developing a regulatory structure for oil and gas in Alberta was in direct response to a serious conservation issue that began over 70 years ago: gas flaring in the Turner Valley area. It is estimated that almost 6 million cubic metres (m^3) (200 million cubic feet [Mmcf]) of gas per day was flared for a decade.

In the 1930s, a City of Calgary alderman noted that the amount of gas flared in six months in the Turner Valley area would be enough to supply Calgary for 10 years.

In the process of flaring gas, which on its own is a waste of a valuable resource, the resulting depressurization below ground made it impossible to recover 50 to 60 per cent of oil in the area.

Industry and government tried to reach a voluntary agreement to conserve the Turner Valley gas, but were unsuccessful. Endless debate, meetings, and court proceedings did not resolve the issue.

Over time, Albertans agreed that the province's energy resources must not be wasted and that energy development should be orderly and efficient, with consideration given to future generations. These principles of conservation led to the recognition that an independent arbiter was required in the province, and so the Petroleum and Natural Gas Conservation Board (PNGCB), a predecessor to the EUB, was created in 1938.

Conservation remains an important aspect of the EUB's mandate today, ensuring that energy resources are not wasted now and into the future.

GOOD REGULATIONS EVOLVE

Good regulations evolve. Over time, new factors develop that require revisions and improvements to regulations so that they remain relevant and continue to meet their objectives.

At the EUB, stakeholder input guides and informs regulatory change. Industry, environmental groups, other government departments and agencies, Alberta communities, and individual citizens all have a stake in the responsible development of our energy resources, each with their own particular perspective and emphasis. For the EUB to develop sound regulations, it is important that we understand and balance these perspectives. Stakeholder engagement is a key strategy in making this a reality.

ENERGY

Regulation is needed so that nonrenewable resources such as oil, gas, coal, and bitumen are produced in a safe, responsible, efficient, and economical manner, without waste. At the same time, the EUB also ensures that development takes place in the public interest, having regard for social, economic, and environmental impacts.

The EUB ensures that everyone affected by development has a fair chance to be heard. When conflicts of interest regarding development remain unresolved, parties may turn to the EUB for appropriate dispute resolution (ADR) or a hearing. ADR focuses on facilitation or mediation, while a hearing involves parties bringing forward evidence to be considered in a balanced and fair manner by a panel of EUB decision makers.

The EUB conducts thousands of inspections across the province each year to ensure that regulations are complied with throughout the life of any operation.

CORE RESEARCH CENTRE

The Core Research Centre, a state-of-the-art facility nestled on a four hectare site in Calgary's University Research Park, contains the most complete drilling history of any area in the world and is available for those looking for detailed information about Alberta's geology.

The EUB is responsible for ensuring that utility rates are fair and that customers receive good service. There are two main components to utility rates: the cost of the energy and the cost of delivering that energy to a customer's home. In the newly restructured utility industry, different companies may provide each of these services. For example, in the EPCOR/Aquila service territory, EPCOR purchases energy for its customers, which is then delivered to them by Aquila.

In most cases, the energy component of natural gas bills and some electricity bills reflects a straight flow-through of market prices. The EUB's role is to verify that this component reflects only the cost of purchasing the energy in the free market, with no mark-up for the utility company.

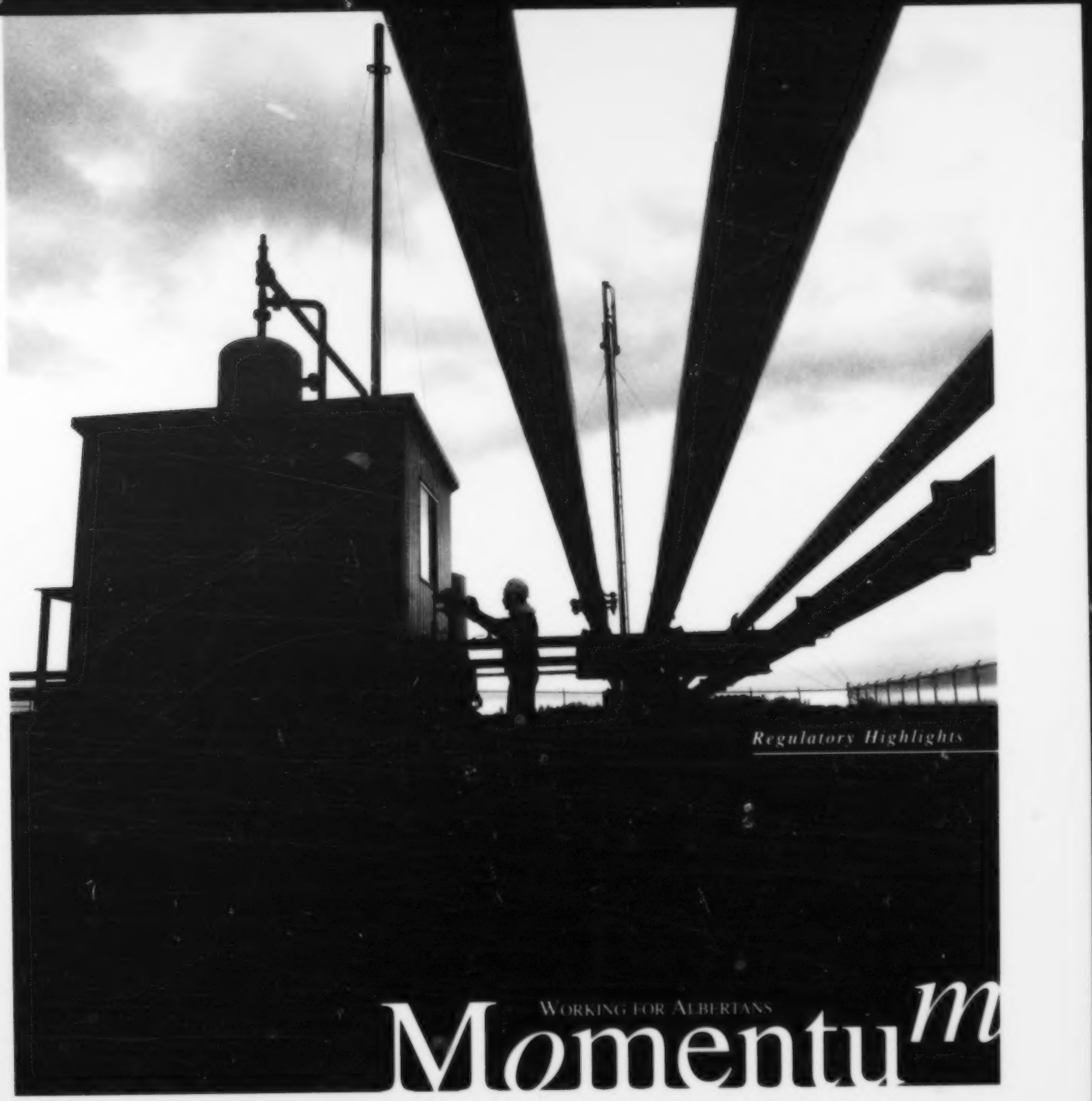
In the case of delivery rates, any utility request for a change in rates is thoroughly scrutinized by the EUB in an open, public hearing process. Different groups participate in these hearings to represent customers and other stakeholder groups. It is the EUB's responsibility to ensure that rates are set at the lowest level that still allows the utility to recover its reasonable costs of providing the service, including a fair return on its investment, in order that it will be financially viable and able to provide customers with safe and adequate service.

In 2004, Albertans will see changes in the utilities sector due to amendments to the *Electric Utilities Act* and the *Gas Utilities Act*, along with the sale of some utility assets to other companies.

One key initiative this year has been the establishment of quality-of-service measures and standards for utility companies, which they report to the EUB on a quarterly basis. The EUB also investigates individual utility complaints to ensure that customers are treated fairly.

ALBERTA GEOLOGICAL SURVEY

The Alberta Geological Survey (AGS) provides geoscience information and expertise needed by government, industry, and the public for Alberta's earth-resources stewardship and sustainable development. AGS's expertise and activities have further developed Alberta's information base regarding areas such as coalbed methane, groundwater, mineral deposits and occurrences, including diamonds and carbon dioxide (CO_2) sequestration—where the greenhouse gas CO_2 is captured from man-made sources and stored in deep geological formations instead of released into the atmosphere.



Regulatory Highlights

WORKING FOR ALBERTANS

Momentum

The volume of applications received by the EUB in 2003 reached record levels, with 43 000 applications submitted. Highlights of these applications and other key areas follow:

21 075 new approvals (sweet single well, sweet multiwell pad, sour single well, sour multiwell pad, critical sour well)

2753 new sweet and sour facilities: oil and gas batteries, satellites, compressor stations, tank farms, pump stations

590 modifications to the above facilities

No new sulphur recovery gas processing plants

11 modifications to sulphur recovery gas processing plants

11 989 pipeline permits for new construction and amendments to existing pipeline licences

169 gas production applications

40 new and amended primary recovery scheme applications

28 new and amended commercial scheme applications

23 new and amended experimental scheme applications

14 commingling applications

3 applications for new and expansion of existing mining or plant projects

509 sour gas flare permits

15 registered applications for new and modified coal projects

9 industrial development permits

3369 applications for reservoir schemes, spacing, commingling, and others

132 electric facility applications (transmission lines and substations, power plants, industrial system designations, and electrification association and service area change)

96 gas utilities applications

55 electric utilities applications

28 municipal government act applications (franchise agreements)

37 other types of applications (sale of assets, milk price orders, exemptions)

1 nonroutine complaint

DECISION REPORTS

One of the roles of the EUB is to assist in the resolution of conflicts between an energy company and individuals or other companies whose rights may be directly and adversely affected by proposed developments. The EUB has a number of approaches to help resolve conflicts: kitchen table discussion, field facilitation, third-party mediation, and the formal hearing process.

The EUB may decide to hold a hearing if a conflict cannot be resolved by any other means. An EUB hearing is a public, quasi-judicial proceeding that provides an applicant, potentially affected parties, and some interested parties an opportunity to be heard. Following the presentation of evidence, the hearing panel, composed of EUB Board members or acting Board members, issues its decision through a decision report.

In 2003 the EUB reviewed about 43 000 applications. 106 resulted in a hearing, including 19 energy hearings and 87 utility hearings. A total of 110 decision reports were issued in 2003, including 23 related to energy applications and 87 related to utility applications. 8 included denials. EUB decisions generally have three potential outcomes: approval, approval with conditions, or denial of the applications under review. Some decision reports of note during 2003 follow.

Decision 2003-023 reviewed 26 applications for 145 gas wells in the Chard area and Leismer Field, located 80 kilometres (km) south of Fort McMurray, Alberta. Issues reviewed in the decision report included the extent of affected resources and reserves, reservoir and aquifer continuity, and the effect of associated gas production on steam-assisted gravity drainage (SAGD) bitumen recovery. Gas producers argued that their wells would not affect future bitumen production, but bitumen producers in the area maintained that they would.

The EUB concluded that certain gas production from within the geological strata known as the Wabiskaw-McMurray would present a high risk to future bitumen recovery, but other gas production in the area would not. As a result, the EUB ordered the shut-in of gas production from specific perforated intervals—in other words, production from different specific geological zones that a well penetrates—within the Wabiskaw-McMurray in 39 wells effective May 1, 2003. The EUB also denied gas production from specific perforated intervals within the Wabiskaw-McMurray in 21 wells but allowed other specific perforated intervals in those wells to produce.

Decision 2003-080 denied an application by Stylus Exploration Inc. to produce gas from four wells in the Hardy area, about 100 km southeast of Fort McMurray. It also determined that gas production from five other wells operated by other companies in the same area must also be shut in. All of the wells would be producing gas from the Wabiskaw-McMurray geological strata and therefore could affect the potential recovery of bitumen in the area. The EUB also decided that previously approved gas production from other Stylus wells in the Hardy area could continue, as the risk of gas being in communication with potentially recoverable bitumen was low.

Decision 2003-014 approved, with four conditions, applications from Petrovera Resources to construct and operate a primary recovery scheme that included 16 well licences for the recovery of crude bitumen in the Cold Lake Oil Sands Area. However, the EUB denied the application for a licence for one of the wells due to concerns about the possible contamination of a potable water aquifer that supplies drinking water to the hamlet of Lindbergh.

Decision 2003-101 denied an application by Polaris Resources Ltd. to drill a level-3 critical sour gas well near Maycroft, Alberta. The decision also denied the company's applications for special gas well spacing, compulsory pooling, and a flaring permit. Areas of concern included the company's inability to provide detailed information about mitigation of potential environmental effects, the company's emergency response plan, the company's overall ability to deal with the challenges presented by this well, certain technical aspects of the well application, and ineffective communication and consultation with the community.

A number of decisions were issued throughout 2003 relating to general rate applications and transmission and distribution tariffs for investor-owned natural gas, electric, and water utilities and certain municipally owned electric utilities.

In November 2002, ATCO Electric Ltd. submitted three applications to construct and operate a 240 kilovolt (kV) transmission line and three substations from Dover (Fort McMurray area) to McMillan, McMillan to Charron, and Charron to Deerland (Fort Saskatchewan area).

After holding a public hearing, the EUB issued *Decision 2003-027*, approving the need for a 240 kV transmission line south from Fort McMurray to the Fort Saskatchewan area. The line would increase transmission capacity to 610 megawatts (MW) from 370 MW. The decision also determined that an alternative route terminating in Whitefish instead of Deerland appeared to be superior to the one applied for.

Decision 2003-043 approved the first leg of this transmission project from Dover to McMillan. In the summer of 2003, ATCO resubmitted its application with Whitefish as the end point. This application drew no objections and was approved by the EUB.

Decision 2003-020 denied an application by Glacier Power Ltd. to build and operate the Dunvegan Hydroelectric Project, an 80 MW facility on the Peace River upstream of the Dunvegan Bridge. A joint EUB/Natural Resources Conservation Board (NRCB) hearing was held to review the application. Key issues were the economic benefits of the project and the impacts of potential increased flooding on the Peace River, including vehicle access across the river via ferries and ice bridges. The EUB/NRCB joint panel also considered the impacts on fish, terrestrial wildlife populations, and associated habitat. The joint panel ruled that the negative social and environmental effects of the project outweighed the social and economic benefits to the community and the province.

Decision 2003-098 approved the transfer of ATCO Gas North and ATCO Gas South, as well as ATCO Electric Ltd. retail assets, to Direct Energy and appointed Direct Energy provider of the electricity Regulated Rate Tariff and the natural gas Default Rate Tariff in the ATCO service territories.

Decision 2003-106 and *Decision 2003-108* approved the tariff rate structure of Direct Energy, ATCO Gas North, ATCO Gas South, and ATCO Electric Ltd. These decisions were structured to ensure a smooth transition of service and avoid billing problems for

customers. The EUB also ordered Direct Energy to undertake a comprehensive benchmarking study to demonstrate that its billing costs represent fair market value. The costs will be fully reviewed in a future proceeding once actual numbers are filed with the EUB by Direct Energy. The EUB also approved the use of various deferral accounts, which ensure that customers only pay for actual costs incurred by Direct Energy.

ENMAX and EPCOR regulation

Decision 2003-084 and *Decision 2003-085* approved interim distribution tariffs for ENMAX Power Corporation and EPCOR Distribution Inc. respectively.

Decision 2003-086 and *Decision 2003-087* approved interim electricity Regulated Rate Tariffs (RRT) for ENMAX Energy Corporation and EPCOR Energy Services Inc. respectively. The RRT applies to eligible regulated rate customers who have not switched to nonregulated retailers for their electricity services.

In both of these decisions, the EUB noted that these were interim rates, based on an abbreviated process to ensure that approved rates were in place January 1, 2004, as required by provincial legislation. A public hearing to fully review the applications and set final rates began in March 2004.

At the EUB, we are committed to connecting with Albertans. Our philosophy is grounded in openness and transparency, and we believe, as Alberta's steward of energy resources, that we are obliged to ensure that people understand their rights, responsibilities, and roles in participating in energy development in their communities.

That's why we've worked hard to find new and creative ways to reach out to Albertans. Over the past year, we've organized open houses, attended public meetings, worked with community associations and synergy groups, facilitated discussions among energy companies and landowners, expanded the EnerFAQs information series, and communicated through radio, television, and newspapers.

EUB staff attend dozens of public meetings every year. In June 2003, for example, Board members and senior staff joined George VanderBurg, MLA for Whitecourt-Ste. Anne, at a public meeting in Whitecourt. The meeting provided an opportunity for the public and representatives from local rural electrification associations and gas co-ops to meet with the EUB, ask questions, and discuss issues related to utilities and oil and gas development in the area.

In September, the EUB Red Deer Field Centre held an open house to officially open its new office in the Millennium Centre in downtown Red Deer. The Field Centre previously had offices in the Red Deer Provincial Building. Landowners, municipal and provincial government representatives, and industry representatives dropped by for a tour of the office and some one-on-one discussions with staff and Board members.

In the fall of 2003, we opened a regional office in Fort McMurray. A welcoming reception was held in November, at which the Chairman, Board members, and staff met with the mayor, industry representatives, and aboriginal community members.

RURAL ADVERTISING PROGRAM

How do you communicate with rural Albertans who are located throughout a vast geographic area? Since over 70 per cent of rural Albertans report that they read their weekly community newspaper, we answered that question with an advertising program targeting 105 weekly rural newspapers across the province.

Reaching out directly to over 550 000 rural Albertans is an important step to ensure that they have the information they need in a local context specific to their needs. It's about reaching out directly to the people who are most often affected by energy development on or near their land.

In each of the series of ads, contact information was included, as well as region-specific information. We hope the campaign will encourage rural Albertans to contact local EUB Field Centres when they have questions or concerns about energy development in their area. We wish to be open and accessible to all Albertans.

EUB INFORMATION SESSIONS

Part of the EUB's role is to make sure that people who are potentially directly and adversely affected by energy and utility development are aware of their rights and how to become involved in our processes.

When it became apparent that Compton Petroleum Corporation's applications for a sour gas development about 1 km southeast of Calgary was headed for a hearing, we conducted six information sessions. These sessions were aimed at informing people about the EUB's application and hearing process and how they could become involved in that process to have their views considered.

The information sessions were generally well attended and gave concerned citizens an opportunity to ask questions about regulations concerning sour gas development.

EUB ON THE WORLD STAGE

The EUB has moved farther onto the world energy stage through involvement in several global events. In May 2003 when the EUB and the National Energy Board (NEB) hosted the annual Conference of the Canadian Association of Members of Public Utility Tribunals (CAMPUT). At the conference, North America's key energy regulators converged to discuss the theme "Markets in Transition—the Changing Face of Regulation."

The CAMPUT conference made headlines in newspaper business sections across the country and provided an opportunity for the EUB to demonstrate to North American regulators how over 85 years of experience is being put to work every day in this province.

The EUB also made a contribution to the global environment through a flaring and venting workshop. At the request of the World Bank, the EUB connected with Algeria, Angola, Cameroon, Chad, Indonesia, and Nigeria to assist them in developing flaring and venting reduction strategies in their respective jurisdictions.

The EUB was also honoured to host 16 foreign delegations in 2003 from around the globe to discuss a variety of topics. Visitors were from Australia, China, India, Japan, Mexico, Nigeria, Norway, Russia, Sudan, and Ukraine.

Our goal is to reach as many people as possible. We will continue to work toward raising awareness and understanding of the EUB and the energy and utilities industries in this province.

UTILITIES: NO SLOWING DOWN FOR EUB IN 2003

On the heels of one of the busiest years in Alberta's history for utilities issues came 2003, which matched the pace set by the Utilities Branch in 2002 and introduced some new wrinkles to the way the EUB conducts its business.

In addition to the ongoing issues associated with natural gas and electricity prices, we also took on new challenges that changed the way utilities are regulated and how the regulated and deregulated sides of the business interact.

Of the 110 decisions issued by the EUB in 2003, the Utilities Branch produced 87.

UTILITIES MISSION

The EUB mission statement has always underscored the work done by Utilities. But last year, that statement was changed for the first time to reflect new circumstances introduced by amendments to the provincial act that governs electric utilities.

The mission statement formerly referred to "investor-owned natural gas, electric, and water utilities." One of the changes made to the legislation governing the EUB was the inclusion of EPCOR and ENMAX under the EUB's regulatory process for approval of distribution and default electricity rates. Previously, each company's operations were governed by their respective city administrations: by Edmonton City Council in the case of EPCOR and by Calgary's own regulatory commission in the case of ENMAX.

As a result, the EUB now regulates rate applications that had previously been reviewed and approved directly by each city. To reflect this change, our mission now says: "The EUB regulates investor-owned natural gas, electric, and water utilities and certain municipally owned electric utilities to ensure that customers receive safe and reliable service at just and reasonable rates."

The seeming insignificance of these six words and the subtlety of this change belie their importance to the EUB as an organization and to Alberta as a whole. This change has been made to level the playing field for all utilities in the province and enhance competition.

We are just embarking on this chapter of our evolution, but there is no doubt we will be busier than ever before as a result, given that our responsibility now encompasses an additional two million residents, not to mention the thousands of businesses that get their electric services from EPCOR and ENMAX.

MARKET SURVEILLANCE ADMINISTRATOR

The EUB also took on a new role in 2003, as the Market Surveillance Administrator (MSA) began reporting directly to the Chairman's office. The MSA monitors Alberta's electricity market for fairness and balance in the public interest and oversees the performance of Alberta's electricity market to ensure that it operates fairly, efficiently, and in an openly competitive manner.

To ensure that all Albertans are receiving the best possible service from their utilities providers at reasonable rates, the EUB also made two other significant changes in 2003.

First, an audit section was established within the Utilities Branch. The Audit and Compliance group was formed to provide assurance to the EUB and other stakeholders regarding the integrity of regulated utility company finances and operations by developing and implementing a program of audits to ensure effective and comprehensive monitoring. In addition, the group is responsible for monitoring utility company compliance with code of conduct regulations and decisions and for monitoring and analyzing financial reporting by utility companies.

Second, the EUB unveiled the first phase of its service quality plans for regulated gas and electric rate tariff providers and electric wire owners. These were created following implementation of the Alberta Government's policy on the restructuring of Alberta's electric industry and in response to complaints from customers about metering, billing, and customer-care issues. The goal is to promote better customer service by ensuring that customer bills are accurate and timely and that complaints are resolved promptly and fairly.

Development of the service quality plans began back in 1999, with the issue of *Decision U99099*, which recognized that even in a deregulated marketplace, there would be a need for monitoring and regulation of certain business practices and activities of utility companies.

Over the next year, utility companies will be compiling and filing data with the EUB, enabling the EUB to determine how they are performing against the established service quality benchmarks. In the future, penalties may apply for nonperformance. Already customers are eligible for a $75 credit should their utility service be improperly disconnected.

In addition, the EUB has a concerns telephone line for customers to call if they have been unable to resolve a dispute with their utility service provider or if they feel mistakes are not being adequately addressed. To reach the Customer Concerns Line toll free, dial the RITE line at 310-0000, then dial 780-427-4903, press zero or stay on the line for an operator. The Customer Concerns Line is accessible by phone from Monday to Friday, 8:00 a.m. to 5:00 p.m., by fax at (780) 427-6970, or by e-mail at Utilities.Concerns@gov.ab.ca.

In 2003, the EUB handled 3902 utility complaints, compared to 2609 in 2002 and 1342 in 2001. The top three areas of concern were estimates on accounts and meter readings, disconnections, and customer service problems. EUB staff work hard to ensure that customers are being treated fairly and that any billing errors are quickly rectified.

Interest in coalbed methane (CBM), an unconventional gas source also called natural gas in coal, has been steadily increasing. During 2003, EUB staff were involved in assessing, researching, and delivering up-to-date information on coalbed methane to Albertans. This included the release of a report from the EUB's Alberta Geological Survey that estimates Alberta's total CBM resource in place to be up to 14 trillion m^3 (500 trillion cubic feet [tcf]).

Basin comparisons

Comparisons have been made between Alberta coal and some of the highly productive CBM basins in the United States. Many American coal basins are smaller in area, with thicker coal seams that may also be associated with underground water aquifers. Alberta coals tend to consist of thinner individual seams and encompass larger areas. Even within Alberta, different coal seams and zones can have very different composition, gas and water content, and production characteristics. It's also important to note that every CBM play is unique. Comparisons between coal basins or individual seams are difficult and often prove impractical.

The development of gas in coal seams is subject to the same drilling, production, and operation regulations as other natural gas activity. There are also rules in place to address water production and surface disturbance issues.

While the EUB clarified in 1991 that the full suite of rules and regulations in place for natural gas also applies to CBM development in Alberta, concerns about regulatory gaps associated with the ongoing development of the CBM resource continue to surface. For this reason, EUB representatives made a concerted effort in 2003 to create an understanding of CBM and show that the EUB is prepared to handle its development.

The EUB either attended or provided information to dozens of community, professional, and industry-related sessions province-wide.

Public consultation

Despite the fact that we have sound regulations that cover CBM activity, it is an emerging industry in Alberta and we are aware of public concerns. For this reason, we are committed to examining whether it is appropriate to bolster existing regulations.

September 2003, the Alberta Government kicked off its CBM public consultation program. The Alberta Department of Energy is leading this initiative, which involves five provincial government departments and the EUB working together to review current legislation, policies, and guidelines to determine whether CBM regulatory changes are required.

In a preliminary meeting to discuss CBM development issues in Alberta, participants identified four areas of focus for upcoming 2004 consultation meetings: water concerns, surface impacts, the regulatory process, and information and education. Participants also suggested that the consultation process include a commitment to meaningful outcomes, active stakeholder participation, and accurate information that is readily accessible, understandable, and succinct.

Tracking development

While much of the province holds potential for CBM production, actual CBM development and related information, such as production data, have been very limited in Alberta until recently. Even with the current interest in CBM activity, the number of CBM wells represents only a small fraction of wells drilled annually in Alberta.

The number of CBM wells, however, has increased in recent years. Cumulatively since 1977, about 1000 CBM wells have been drilled, about 700 of which were completed in 2003. The EUB is currently refining the tracking process for verifying CBM wells and, as part of this work, has implemented a CBM code on well licence applications for wells targeting gas production from coal seams.

Since the number of CBM wells tends to increase in spurts as projects are developed, publishing accurate up-to-date statistics can be challenging. In addition, coals are often interspersed in the subsurface with other low-quality conventional gas formations and have the potential to be produced together, or commingled, in the same wellbore. This makes defining CBM wells that much more difficult.

WATER PRODUCTION

In some cases, water production may be associated with CBM. This production may be saline (salty) or nonsaline. To date, there has been little water production associated with shallow CBM production in Alberta, and the realization of "dry" coals in Alberta has changed the thinking about CBM production worldwide. Saline water production has been associated with Alberta's deeper CBM production. Under the *Oil and Gas Conservation Act and Regulations*, the EUB regulates drilling, completion, operation, and produced water disposal for oil and gas wells, including CBM wells. In areas where nonsaline water may be produced, companies are also required to meet Alberta Environment requirements.

WELL SPACING

While there may be some different concerns regarding CBM development, the EUB expects that such issues as potential impacts on the public and the environment will be similar to those regarding natural gas development. In much of Alberta, particularly in areas of shallow gas development, two to four gas wells per section per pool are common. Where necessary, higher density gas development exists to effectively recover the gas. Initial information suggests that the spacing for wells targeting a CBM source may be two to eight wells per section per pool, but this depends on various factors, especially the area's geology.

In most instances, industry must file a reduced well spacing application to the EUB if it wants to drill more than one gas well per section per pool. Such applications also must meet public consultation requirements. Early public involvement, prior to identifying all project details or individual well locations, is useful in identifying broad development plans and special needs.

In areas already producing conventional oil or gas, CBM development may be able to use the existing infrastructure as a way of minimizing surface impact and disturbance. This includes drilling multiple wells directionally from a single location to reduce surface disturbance, while allowing the necessary number of subsurface wells to penetrate the coal seam and recover the gas. There may be some technical and economic limitations on applying such practices to shallow wells and wells producing water.

With new CBM development, as with any other energy project, industry, regulators, and the public must review the impact on current and future land use. Public discussions on specific project plans and options are usually needed to fully understand and address impacts.

In the fall of 2003, one of Alberta's most enduring oilpatch stories drew to a close with the abandonment of three wells on the banks of the mighty Peace River, just east of the nearby town bearing the same name.

On September 9, 2003, the EUB successfully abandoned the Peace River Oil Company No. 1 well, drilled back in 1916, along with two relief wells drilled in 1955 and 1982.

For more than 20 years, the seemingly unstoppable Peace River well spewed 5700 m^3 (36 000 barrels) per day of salt water into the Peace River and released noxious gas with up to 0.1 per cent hydrogen sulphide (sour gas), which was flared in a burn tray. In fact, the flames from the burn tray had become something of a local attraction. Boat tour operators pointed out the well as a landmark to curious tourists embarking on trips down the Peace River.

The original Peace River well—licensed under federal jurisdiction—blew out during drilling at a depth of about 350 m. The drilling derrick collapsed and the well continued to flow water and gas.

In 1930, the Natural Resources Transfer Agreement between the Government of Canada and the Province of Alberta transferred resource ownership to the province, which meant that the Peace River well was now Alberta's responsibility.

When the first predecessor to the EUB (the Petroleum and Natural Gas Conservation Board [PNGCB]) first inspected the Peace River well in 1954, staff decided it should be properly abandoned. In 1955, the PNGCB drilled the first Peace River relief well: a directional well that intersects the uncontrolled well so that heavy drilling fluid can be pumped down to stop the flow.

Board staff periodically inspected the Peace River well site, but it was a public complaint to the next EUB predecessor (the Energy Resources Conservation Board [ERCB]) in 1982 that reported a sinkhole had appeared, with gas and water flowing up the outside of the 1955 relief well casing.

The ERCB's attempts to re-enter the 1955 well were unsuccessful. Given the danger to the safety of the workers on site, the rig was moved off this well, and a new relief well was drilled a few metres to the northeast. In 1982, at a depth of 99 m, operations were suspended due to an inability to control the water and gas flow and the risk of losing ground stability under the rig. These factors again seriously threatened the workers' safety.

Faced with this near impossible situation, operations were discontinued. It was hoped that over time the flow from the wells would diminish as the zones depressurized. But this did not happen: flow rates remained constant for the next 20 years.

Over the next several years, the ERCB monitored the flow rates from the wells, took water samples, and conducted mobile air monitoring around the location. By 1986, the ERCB doubted that any long-term success at controlling the flow of gas and water from the Peace River wells could be achieved using existing technology. Minimizing erosion of the riverbank, preventing further saltwater surface damage, and managing the sour gas odours appeared to be the best means of mitigating the situation.

In 1989, Alberta Environment published its *Environmental Assessment Study of Peace River Oil Company No. 1*, which outlined the localized effects of the outflow on the river and evaluated groundwater and soil contamination and effects on the landowner's waterwell quality. The report indicated that the dilution effects of the Peace River were so great (1:10 000 at low flows) "that there were no effects other than a slight increase in chloride concentration for a short distance downstream of the wells."

From 1990 to 1998, ERCB staff (followed by EUB staff after the amalgamation of the ERCB and the Public Utilities Board in 1996) were responsible for monitoring the Peace River wells and maintaining surface separation and flaring equipment.

In 1998, the Orphan Well Association began managing all orphan oil and gas well sites in Alberta, including this Peace River well site. In 2001, the EUB approached the Orphan Well Association about raising sufficient funds to attempt another abandonment.

The well-control operations were the product of a unique collaborative process established by the EUB in conjunction with the Orphan Well Association, the Canadian Association of Petroleum Producers, the Small Explorers and Producers Association of Canada, and provincial and federal authorities. The majority of the $5 million project was funded by industry.

Instead of drilling another relief well, an approach that had failed twice in the past, a plan emerged to re-enter the original 1916 well and pump down heavy mud and cement at high pressure to overwhelm the surging salt water.

About a thousand barrels of mud was pumped down the well, followed by about 800 barrels of cement, which needed to set very shortly after reaching the bottom to keep the well killed.

With no more salt water or sour gas flowing to the surface, the battle was won. Now, the site of Peace River No. 1 is returning to normal. The wells have been cut and capped beneath the surface and the lease area reclaimed. The abandonment on September 9, 2003 brought to an end a long and fascinating chapter in the history of the Peace River country.

When many Albertans say the word "synergy," they are speaking of more than combined action: they are referring to a community-based group of people, usually comprising representatives of the public, local industry operators, and EUB field staff, who meet to identify and address issues related to oil and gas development. Synergy groups of this sort are not a new phenomenon, but are unique to Alberta. In the past five years, their numbers have increased dramatically as population growth meets increased industry activity.

The diversity of communities, issues, and members makes synergy a dynamic movement. An interesting new development in some areas is a broadening of membership to include such groups as municipal governments, tourist bureaus, and chambers of commerce. In addition to issues related to oil and gas, many of these newer groups are also addressing issues related to development in other sectors. Whether newly formed or experienced, synergy groups are connected to each other, and many are looking to make a contribution not only at the local level, but at the provincial level as well.

SYNERGY AND THE EUB

As one of the key stakeholders, the EUB supports the synergy movement in a number of ways. Our field staff are the face of the EUB at the local level. Living and working in the community, they are active participants in synergy groups all over the province. They guide and advise on regulatory processes, requirements, and expectations, bring technical expertise to the table, and are an important link between landowners and the Calgary office staff.

At the provincial level, EUB staff participate on two multistakeholder committees. One is responsible for synergy conferences. The other, the Industry Landowner Relations (ILOR) committee, a multisectoral group chaired by the EUB, takes a provincial look at relationships and ensures that new initiatives are communicated both to communities and to the membership of the organizations that sit at that table.

SYNERGY SUPPORTING SYNERGY

If you see a turtle atop a fencepost, chances are that he had some help along the way. This was one of the bits of folk wisdom that emerged during "Synergy Supporting Synergy," a two-day roundtable of synergy groups held in Red Deer in late October. The point is that if you're going to think outside the box and go where no turtle has gone before, you need a little help from your friends and neighbours.

Cosponsored by synergy groups, the Canadian Association of Petroleum Producers, and the EUB, "Synergy Supporting Synergy" was the second provincial gathering of synergy groups. It was quickly apparent that we've come a long way in 18 months: Nearly 200 people rolled up their sleeves to develop a collective vision and action plan to move synergy forward in a more effective and supportive fashion. Guided by the three strands of synergy—cooperation, communication, and convergence—participants took a look 10 years into the future with their vision, then looped back to the present to find a way to make it happen.

SYNERGY WORKS!

The consensus at the roundtable was that synergy works! By 2013, participants envision a "synergy province," a well-established

network of relationships. This will occur through more communities, industry members, and government departments and agencies coming together and broadening their focus to include the agriculture, education, health and safety, water, mining, and forestry sectors. With a solid foundation supported by the principles of trust, transparency, access, accountability, and inclusivity, synergy will be the norm, rather than the exception.

But how do we get from here to there? To achieve the desired and necessary cooperation and communication, people (industry, synergy groups, regulators, and others) need to meet at the local level to address local issues. Converging at the broader provincial level allows sharing, education, and ease of contact without sacrificing local flexibility or autonomy. Both levels of influence are seen as necessary but complementary aspects of synergy. Putting a provincial face on synergy will not in any way reduce the influence of the local synergy group. Rather, each will support and inform the other, making synergy stronger overall.

At the roundtable, education and communication among stakeholders emerged as common needs and goals. A small multistakeholder implementation team will be formed with the responsibility of developing a framework for a centralized information centre and synergy support system. One of the tasks of the implementation team is to expand and improve access to an existing database to promote learning and sharing among groups. The team will also examine better ways to

- identify and resolve problems,
- share ideas, stories, and best practices,
- develop participation skills and leadership at the local level, and
- promote synergy in new and existing arenas.

All roundtable participants and other interested parties will be kept informed on a regular basis of the progress of the implementation team, with another provincial gathering taking place as the team concludes its work.

In essence, synergy is about learning to be better neighbours by fostering understanding and better relationships. It is hard work with a long-term perspective. But synergy members find that it is more constructive and mutually beneficial than ongoing conflict. Together, we can get that turtle atop the fencepost.

OIL SANDS FACTS

Oil sands are a mixture of sand, clay, water, and bitumen. Bitumen is thick, heavy oil with the consistency of molasses and is contained in the spaces between sand grains. Bitumen is also found in deeper carbonate rock. In technical terms, bitumen is a petroleum hydrocarbon with a density greater than 960 kilograms per cubic metre; light crude oil, by comparison, has a density as low as 793 kilograms per cubic metre.

Mineable oil sands

Mineable oil sands are near-surface deposits of bitumen mixed with sand, rock and water. Sometimes

In situ

In the oil sands context, in situ refers to bitumen that is too deep to mine from the surface and therefore must be produced through wells. Currently, there are three main methods to produce in situ bitumen: primary production, cyclic steam stimulation (CSS), and steam-assisted gravity drainage (SAGD).

Primary production

To some extent, bitumen flows to the wellbore without assistance and is then pumped to the surface.

CSS

CSS typically involves drilling vertical wells into a bitumen zone, letting it soak for a period of time while pressure is maintained and diluted, and then producing the bitumen and water mixture back out of the well by pumping to the surface. When the flow to the surface slows, more steam is injected and the cycle continues.

SAGD

SAGD typically involves drilling pairs of horizontal wells, one for steam injection and one for production, under the ground. The horizontal wells run parallel to each other in the bitumen zone, with the production well located below the injection well. Steam is injected into the reservoir from the injection well. As the steam permeates the oil sands, it heats the bitumen, allowing it to flow, and the bitumen is then pumped to the surface via the production well.

Oil sands continued to fuel energy industry growth in 2003. Major highlights included two joint review panel hearings, increased unconventional crude oil production, and the opening of the EUB's full-service Fort McMurray Regional Office.

Two joint EUB/federal hearings were held for the Canadian Natural Resources Limited Horizon project and the Shell Canada Limited Jackpine project. These hearings were the first of their kind for oil sands applications, involving a joint review panel from the EUB and the federal government under the Canadian Environmental Assessment Act. The hearings illustrate the complexity and size of these projects, as well as the increasing cooperation among jurisdictions involved in the development of Alberta's vast oil sands.

Raw bitumen production once again exceeded conventional crude oil production, continuing a trend that began in 2001. We expect the gap to widen as Alberta's oil sands production grows while traditional crude oil production declines.

Bitumen production has more than doubled in the past 10 years. In 2003, the production of bitumen was about 153 thousand m^3 (965 thousand barrels) per day. Surface mining accounted for about 64 per cent and in situ accounted for about 36 per cent of the total bitumen production. From surface mineable bitumen, about 86 thousand m^3 (540 thousand barrels) per day of synthetic crude oil was produced.

The EUB is unique in that we require companies to submit well logs for every well drilled. We conduct a technical analysis of these well logs, as well as of core samples, on a well-by-well basis, integrating information and extrapolating to areas between wells using various mapping techniques. This process is technically intensive and provides the best available understanding of the resource's extent and volumes.

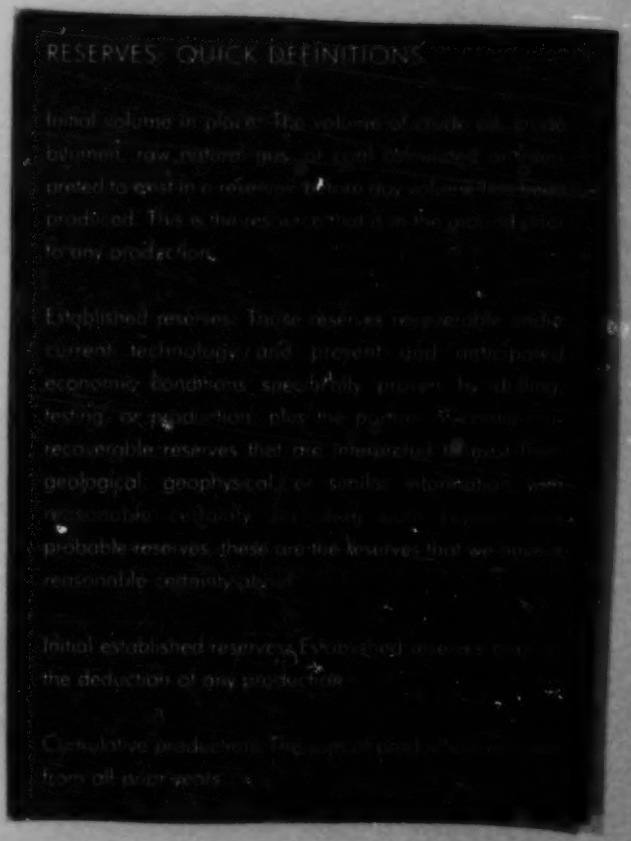
Our reserves numbers are a thorough, independent estimate based on this detailed technical and geological analysis. As recovery technology advances, we periodically update our reserves estimates. Our goal is to continue to understand our resources to the best degree possible and to use this knowledge in the management of the resources to the benefit of all Albertans.

We estimate that the oil sands contain 28 billion m^3 (174 billion barrels) of remaining established crude bitumen, as well as an initial volume in place of 259.2 billion m^3 (1.6 trillion barrels).

FORT MCMURRAY REGIONAL OFFICE

Recognizing that oil sands are playing a larger role in Alberta's future, we opened a full-service office in Fort McMurray in late August. This office is directly responsible for managing mineable oil sands applications, operational surveillance, field surveillance, environmental services, aboriginal relations, and geology and resource appraisal. Mineable oil sands applications are now accepted and processed in Fort McMurray.

Starting with 12 employees at a temporary site, the permanent office is currently under construction and will be completed in spring 2004, with a full staff of 19. The establishment of the Fort McMurray office demonstrates the EUB's commitment to the ongoing orderly development of the Athabasca oil sands.



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Primary production

In some instances, bitumen flows to the wellbore without assistance and is then pumped to the surface.

CSS

CSS typically involves injecting high-pressure steam into a bitumen zone, letting it soak for a period of time while the bitumen is softened and diluted, and then producing the bitumen through the same well by pumping to the surface. When the flow to the surface slows, more steam is injected, and the cycle continues.

SAGD

SAGD typically involves drilling pairs of horizontal wells, one for steam injection and one for production. Under the ground, the horizontal wells run parallel to each other in the bitumen zone, with the production well located below the injection well. Steam is injected into the reservoir from the injection well. As the steam permeates the oil sands, it heats the bitumen, allowing it to flow, and the bitumen is then pumped to the surface via the production well.

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RESERVES: QUICK DEFINITIONS

Initial volume in place: The volume of crude oil, crude bitumen, raw natural gas, or coal calculated or interpreted to exist in a reservoir before any volume has been produced. This is the resource that is in the ground prior to any production.

Established reserves: Those reserves recoverable under current technology and present and anticipated economic conditions specifically proven by drilling, testing, or production, plus the portion of contiguous recoverable reserves that are interpreted to exist from geological, geophysical, or similar information with reasonable certainty. Including both proven and probable reserves, these are the reserves that we have a reasonable certainty about.

Initial established reserves: Established reserves prior to the deduction of any production.

Cumulative production: The sum of production volumes from all prior years.

In 2003, the momentum from seven years of work culminated in a comprehensive approach to one of the biggest conservation issues the EUB has dealt with since our inception: bitumen conservation.

For the past seven years, the EUB has consulted with industry, held public hearings, and gathered information regarding the effects of gas production on the recovery of crude bitumen in the geological strata know as the Wabiskaw-McMurray of the Athabasca Oil Sands area. Several times, the EUB's authority and process have been legally challenged, and in each case the EUB has actively responded and stood behind its approach.

The bitumen conservation issue centres on areas where natural gas lies in contact with significant bitumen resources. When that natural gas is extracted, there is a drop in pressure within the gas zones. Evidence indicates that this leads to a risk of bitumen loss, as bitumen may not then be recovered through existing thermal recovery techniques, such as steam-assisted gravity drainage (SAGD).

Managing conservation issues is about risk management and finding a prudent path forward. In deliberating the relative merits of continuing production of one resource at the risk of losing another, the EUB considers many factors, including what may be recovered or lost in the long term.

The issue of bitumen conservation was brought forward at the end of 1996 when Gulf Canada approached the EUB with an application to shut in the gas above the bitumen in its Surmont lease. Gulf expressed concern about the depressurization of the gas zone and the impact on the recoverability of its bitumen.

The EUB recognized that this application had implications that went beyond Gulf's leases, and so an inquiry was conducted to draw upon the expertise of all stakeholders.

The inquiry report, issued in March 1998, concluded that there was a technical risk and that regulatory intervention was required. As a result, *Interim Directive (ID) 99-1: Gas/Bitumen Production in Oil Sands Areas: Application, Notification and Drilling Requirements* was issued in February 1999. Recognizing that there was already significant capital invested in current production, the ID did two things: 1) it grandfathered production already occurring—in other words, allowed it to continue based on previous circumstances, making it clear that continued production was subject to resolving concerns raised by oil sands leaseholders or the EUB, and 2) it focused on getting control of the issue through a proactive application process. *ID 99-1* requires new applications for gas production to show that the gas is not associated with bitumen or, if it is, why gas production should be allowed, considering the potential effect on future bitumen recovery.

A public hearing on Gulf's original application to shut in gas on its Surmont lease began in April 1999 and ran for 47 days. *Decision 2000-22*, issued in March 2000, ordered the shut-in of 146 gas wells out of the requested 183 wells. Specifically, it shut in all Wabiskaw-McMurray gas production from wells within the lease and all Wabiskaw-McMurray gas production from some wells in the buffer zone where gas pools extended beyond the lease boundaries.

By this time the EUB had received about 26 applications in the Chard-Leismer area from various parties, some respecting the shut-in of gas wells and others for the approval to produce gas wells. The applications included a total of 145 wells. All the applications were rolled together and an omnibus hearing began in November 2001 and ran for 66 days.

In March 2003, *Decision 2003-23* ordered the shut-in of associated gas production from specific perforated intervals—in other words, production from different specific geological zones that a well penetrates—within the Wabiskaw-McMurray in 39 wells, denied associated gas production from specific perforated intervals in 21 wells, approved gas production from specific perforated intervals in 21 wells, and did not require the shut-in of gas production from specific perforated intervals in 76 wells. You'll note that these numbers add up to 157 decisions for 145 wells: this is because the analysis was not just of the individual wells, but of different perforated intervals within wells.

All of this took time. After six years of work, a geographical area four to five times larger than what had been resolved still needed to be dealt with. Conservation had become an urgent issue.

So the EUB took a different approach. *General Bulletin (GB) 2003-12: Gas Production in Oil Sands Areas*, issued in April 2003, sought input from industry on alternatives to shutting gas in.

All feedback was considered, and in June 2003 *GB 2003-16: Proposed Conservation Policy Affecting Gas Production in Athabasca Wabiskaw-McMurray Oil Sands Areas* was issued. The GB defined the problem in the area, proposed action, and presented a policy statement with details so that the situation was clear.

The EUB next held a consultation meeting July 3-5, 2003, at which 39 interested parties who had made written responses had an opportunity to make oral presentations on the bitumen conservation proposal set out in *GB 2003-16*.

After considering the responses and oral presentations, on July 22, 2003, *GB 2003-28: Bitumen Conservation Requirements Athabasca Wabiskaw-McMurray* was issued.

This GB ordered the interim shut-in of Wabiskaw-McMurray production from 938 wells in the area of concern, unless operators filed a temporary exemption for wells' specific perforated intervals with the EUB. Temporary exemptions were submitted for 608 wells where operators had evidence that natural gas production did not affect the potential recovery of bitumen. The result was that 40.5 per cent of gas production in the area was shut in.

The GB stipulated that any exempted wells contested by the EUB or affected parties would be addressed on an interim basis through an expedited EUB process, but no objections to exemptions were filed.

The GB also described the launching of a regional geological study to assess whether Wabiskaw-McMurray gas zones are associated or not associated with potentially recoverable bitumen.

REGIONAL GEOLOGICAL STUDY

On January 2, 2004, an EUB/industry team of 27 full-time EUB staff and 15 geologists and engineers from 11 companies finished a regional geological study of the Wabiskaw-McMurray for a large part of the area of concern.

Over four months, the team put in almost 17 person years of work. They examined about 3600 well logs and 6600 boxes of core samples from about 136 townships, or roughly 12 950 square kilometres (km^2). Laid end to end, the core samples would measure nearly 10 km in length. The team also evaluated 3280 wells for the presence of gas and bitumen, including gas and bitumen wells that were operating, suspended, or abandoned.

FULL REVIEW AT A HEARING

With the regional geological study finished and released to the public, an interim EUB hearing began on March 10, 2004, to address the production status of wells in dispute on an interim basis. If required, a final EUB hearing will be held to decide the final production status of wells that continue to be in dispute.

At the EUB, we recognize the importance of this issue to industry and to citizens across Alberta. We will continue to move forward to ensure a fair and balanced approach to bitumen conservation.

Public Safety and Sour Gas Progress Report

WORKING FOR ALBERTANS

Momentum

Why must we produce sour gas in Alberta? Considering that sour gas is natural gas that contains measurable amounts of hydrogen sulphide (H_2S)—an undeniably toxic substance—it's a valid question.

THE NEED FOR GAS DEVELOPMENT

The answer focuses on our world's very real need for large quantities of energy. Alberta has an abundance of natural resources to help meet this need in the context of regulations that are arguably the most stringent in the world.

Having a world-class regulatory regime is only appropriate, since Alberta's resources rank us as the world's third-largest producer of natural gas and the second-largest gas exporter, behind only Russia. Half of Alberta's oil and gas production is exported to the U.S., with Alberta being responsible for providing about 10 per cent of the U.S.'s oil imports and about 12 per cent of its natural gas imports. About one-third of all the gas produced in Alberta is sour.

This global stature and ongoing North American demand result in significant levels of petroleum industry activity. Alberta accounts for about 73 per cent of all new oil and gas wells drilled in Canada, about 60 to 70 per cent of which are gas wells.

Sour gas has been produced safely for decades in Alberta, with commercial-scale production truly beginning in 1952, when the first sulphur-recovery plant (removing the sulphur from H_2S) was built at Jumping Pound in the foothills west of Calgary.

The EUB expects sour gas production to continue steadily in the future. Today, sour gas is an important component of Alberta's natural gas production. As of 2003, sour gas accounts for about 20 per cent of the province's total remaining gas reserves but about 32 per cent of marketed natural gas. The average H_2S concentration of these producible sour gas reserves is 9.2 per cent.

PUBLIC SAFETY AND SOUR GAS (PS&SG)

Alberta is a world leader in safely producing sour gas, with the EUB establishing the world's most rigorous set of sour gas regulations. There are currently more than 6000 sour gas producing wells, 12 500 km of sour gas pipeline, and 240 sour gas processing plants in the province. About 70 of these processing plants remove the H_2S from the gas stream, producing clean-burning natural gas, as well as elemental sulphur as a by-product, which is then sold for use as fertilizer and as petrochemical feedstock. The remaining 30 per cent of the plants either incinerate the H_2S or reinject it deep underground into appropriate geologic formations.

With Alberta's growing population, these thousands of wells and hundreds of gas plants mean that sour gas exploration, development, and production often take place in proximity to large numbers of people.

A recent study received by the EUB shows that during 2000, the sour gas industry supported over 37 000 jobs, generated approximately $1.3 billion in wages and salaries, and contributed over $1.78 billion in royalties and taxes to the province.

To ensure that sour gas development happens in the public interest, the EUB is committed to reviewing and improving sour gas regulations on an ongoing basis where necessary.

WHERE WE WERE, WHERE WE ARE

Let's step back for a moment to the early 1970s. The petroleum industry in Alberta was much smaller than it is today:

- As the regulator, the EUB only dealt with about 70 operating petroleum companies drilling between 2000 and 5000 wells per year.
- The population of the province was about 1.6 million people, and the majority of the natural gas drilled was sweet.

Sour gas simply was not a big issue in Alberta then. The industry and the regulator went about their business, and the public didn't pay much attention.

Let's now move forward to the early years of this decade:

- There are more than 1600 operating petroleum companies—a significant increase from the 70 companies of the early 1970s.
- Those companies are drilling 8000 to 12 500 gas wells per year (more than twice as many as in the 1970s).
- The population has grown to 3 million people, and there are now thousands of sour gas wells, plus associated sour gas pipelines and hundreds of processing plants.

Albertans have voiced concerns about more sour gas industry activity taking place closer to people. The public has questions about health and safety issues related to sour gas development, along with worries about emergency response should an incident occur and concerns about property values.

As the regulator, our vision is to have a regulatory framework that inspires public confidence. It became obvious that public confidence was not being maintained. In fact, there appeared to be a decrease in public confidence and an increase in public anxiety about sour gas development.

The EUB recognized that something had to be done, including a thorough review of regulations and how they are applied, to restore the public's confidence in public safety.

ADVISORY COMMITTEE ON PS&SG

In January 2000, the EUB struck the Provincial Advisory Committee on Public Safety and Sour Gas to review and assess public health and safety related requirements being applied to the approval, development, and operations of facilities respecting Alberta's sour natural gas resources. Chaired by a former chairman of the EUB, who was also a member of the Lodgepole Blowout Inquiry in 1983, committee members included medical professionals, academics specializing in risk research, representatives from First Nations, rural and urban government, the land development industry, and various other provincial departments, and members of the public.

The committee embarked on an extensive research and information-gathering process that took a full year. Papers and presentations were compiled, and two rounds of visits were made to more than 15 towns around Alberta that had direct involvement in sour gas development. Ten discussion sessions were held with various First Nations groups, and written submissions were sought from other aboriginal organizations. A telephone survey was conducted, an e-mail address and Web site were set up, and the committee also welcomed phone calls, letters, faxes, and personal visits from interested parties.

All in all, the Public Safety and Sour Gas Advisory Committee spoke to thousands of Albertans. As a result of this hard work, the initiative won an international award in 2001 from the prestigious Institute of Petroleum, based in London, England, for the best energy-related public consultation project worldwide.

In December 2000, the committee presented the EUB with a report containing 87 detailed recommendations focused on

- providing a better understanding of sour gas,
- improving the sour gas regulatory system,
- reducing the impacts of sour gas on public health and safety, and
- improving the communications and consultation that take place with the public on all sour gas matters.

This report, with its 87 recommendations, is available on the EUB Web site at www.eub.gov.ab.ca. The Web site also has a series of pages on PS&SG, including semi-annual and annual EUB progress reports on this initiative.

Upon receiving the intial report, the EUB immediately pledged publicly to address all 87 recommendations. A team of senior EUB staff was put in place, with an annual budget of nearly $3 million.

Today, more than three years after receiving the report, more than 200 EUB staff have been involved in this important work. Hundreds of stakeholders from industry, the public, government, and special interest groups have been engaged in consultation efforts. Significant media coverage of this work has occurred and, most important, significant progress has taken place.

By the beginning of 2004, 26 of the 87 recommendations had been completed. Work was well under way on another 58 recommendations, and work was about to begin on the remaining 3.

WHAT ARE THE RECOMMENDATIONS?

The Public Safety and Sour Gas initiative has years of positive outcomes ahead of it. It involves significant work on numerous technical, scientific, health, operations, and regulatory reviews, broken down across five broad categories:

- Health Effects and Sour Gas Research
- Sour Gas Development Planning and Approval
- Sour Gas Operations
- Emergency Preparedness
- Information, Communications, and Consultation

While space doesn't allow us to detail the specifics of all 87 recommendations, we can report that the EUB, the public, and the sour gas industry are realizing some outstanding successes in the area of sour gas development. In fact, this work has resulted in a fundamental cultural shift in how the industry does business in Alberta, as the following illustrates.

Alberta Health and Wellness (the government department responsible for health) established a multistakeholder expert advisory committee to evaluate the current health effects literature on H_2S and sulphur dioxide (SO_2). A review on short-term exposures to H_2S has been completed, and the final report, *Health Effects Associated with Short-Term Exposure to Low Levels of Hydrogen Sulphide (H_2S): A Technical Review*, is available on the Alberta government Web site (www.gov.ab.ca). A review of SO_2, the main product of combustion derived from burning H_2S, is also under way and is expected to be completed in early to mid-2004.

Alberta Health and Wellness is also involved in a process that will assist with the revision of the H_2S health effects tables, which outline human physiological effects in response to levels of H_2S exposure. The EUB will use these revised tables in addressing public safety and sour gas recommendations on standardized dispersion modelling—the science of predicting downwind concentrations of released gases, emergency response planning, and setbacks. Setbacks are minimum distances allowed between sour gas facilities (wells, pipelines, and processing plants) and urban centres, residences, and occupied buildings or areas such as churches, schools, and campgrounds. These distances vary according to the hazard from 100 m to 1.5 km.

On the issue of standardized dispersion modelling, three recommendations relate to the development and maintenance of standardized hazard and risk analysis protocols. The objective is to provide clarity to the public and industry by providing a benchmark for comparison of sour gas developments. The hazard analysis will form the basis for both a protocol to calculate an emergency planning zone and a protocol for risk analysis with an incident frequency component.

Another series of recommendations involves examining improved sour gas surface and subsurface planning across the province. We are moving towards having industry speak to involved communities about overall area and project plans for sour gas development projects when appropriate. If a company knew that it was going to be drilling several wells and constructing several pipelines within a community, the company could speak about the overall area and/or project plan instead of dealing with people about one well, one pipeline, or one facility at a time.

This work involves other provincial government departments, such as Alberta Energy, and local governments, such as towns and counties, as well as regional health authorities. The overarching concept is to have as many people and authorities as possible involved in consulting on, planning for, and sustaining development of sour gas resources, in order to minimize disturbances within a community. All of the involved local agencies, such as municipal governments and health authorities, would be aware of the development and be able to deal more effectively with any issues that may arise.

Of course, the EUB conducts public hearings when issues surrounding energy developments arise that cannot be resolved in any other way. Yet another series of recommendations has resulted in the EUB working to make our public hearings more "user friendly," so the public sees more clearly that their participation is appreciated, necessary, and worthwhile.

The EUB is reviewing requirements for older sour gas pipelines to ensure that there is adequate attention to corrosion failures, prevention practices for third-party damage to sour gas pipelines, and setbacks and their implications for surface development.

We have implemented a 100 per cent inspection rate for critical sour gas wells and have greatly increased the inspection frequency of sour gas operations where people are living in the emergency planning zone. Coupled with this increase in inspections, we have also increased the inspections done on new and noncompliant operators. The EUB publicly tracks and reports inspection results via the annual *Field Surveillance Provincial Summary (Statistical Series 57)*, which is available on our Web site.

Of course, to many people living near sour gas developments, public safety is closely aligned with emergency preparedness. Under the Public Safety and Sour Gas initiative, the EUB has prepared a new emergency response planning guide and updated requirements to better coordinate emergency responder roles. As part of the EUB's ongoing commitment to constantly enhance public safety, we are also reviewing the process for defining emergency planning zones.

Nineteen recommendations have a direct or indirect emergency response planning component. One involves examining the capability for air monitoring during significant sour gas release events. In this case, the project team completed an inventory of the type, sensitivity, reliability, and location of available air monitoring equipment across the entire province. It used the inventory database to assess whether adequate capability exists within the province to monitor events involving significant sour gas releases and concluded that it does.

The EUB has developed guidelines for staff to follow in the event of an emergency to ensure a consistent approach to collecting, analyzing, and disseminating air monitoring results. It is interesting to note that this project team also completed a review of the 1983 *Lodgepole Blowout Inquiry Report* and concluded that the new guidelines satisfied the inquiry report's recommendations.

The EUB agrees that people and communities have the right to ask questions about public safety and sour gas. Individuals, families, and communities ask: Why are you *forcing* me to live or work near a sour gas development? How can you reassure me that my family is being protected?

The EUB believes that when regulations are sound, communication and consultation are the best means to resolve public anxiety. We call this "participant involvement," because it is important for both industry and the public to work together. The Public Safety and Sour Gas initiative, through its participant involvement measures, has led to a fundamental cultural shift in how the energy industry and the public communicate.

Industry is required to develop an effective participant involvement program that includes those parties whose rights may be directly and adversely affected by the nature and extent of a proposed application. A company must develop and implement this program *before* filing an application with the EUB, and the program must include

- distributing the applicant's information package and the required EUB publications,
- responding to questions and concerns,
- discussing options, alternatives, and mitigating measures, and
- seeking confirmation of nonobjection through cooperative efforts.

Industry is also expected to be sensitive to timing constraints on the public, for example, the agricultural calendar for planting and harvesting or for lambing and calving seasons, as well as statutory holidays.

The public, in turn, also has responsibilities and is strongly encouraged to participate in ongoing issues identification, problem solving, and planning with respect to local energy developments. Early involvement in informal discussions with industry may lead to greater influence on project planning and mitigation of impacts. The public is also expected to be sensitive to the timing constraints faced by the company.

The EUB also stresses that participant involvement does not end with the issuance of a licence to drill a well or construct a pipeline. Public involvement must continue throughout the life of a project, showing a "good neighbour" attitude by both industry and the public.

Does this approach work? Overwhelmingly, yes! Here are some amazing statistics about the success of requiring meaningful, effective public consultation and participant involvement:

In 2003, the EUB processed about 43 000 energy applications. Each one had to undergo a consultation process. Of those applications, about 6400 had some type of issue or concern that had to be addressed. Of those 6400, only about 19 remained unresolved and ended up in an EUB public hearing, where the EUB, as the regulator, acted in an adjudicative role and rendered a decision on the application. The bottom line, then, is that the EUB only had to formally adjudicate on about 19 energy applications out of about 43 000 in 2003. This shows an astounding success rate for proper consultation.

SYNERGY GROUPS: ANOTHER SUCCESS

This brings us to a second success: synergy groups. Synergy groups are community-based groups of people, usually comprising representatives of the public, local industry operators, and EUB field staff, who meet to identify and address issues related to oil and gas development.

The formation of synergy groups reflects the fundamental cultural shift referred to earlier, in that as industry activity levels increased in Alberta during the 1990s, there was also an increase in community activism. People have legitimate concerns about things like

- human and animal health and safety,
- environmental impacts, and
- the sustainability of resource development.

They want to have meaningful influence on those decisions that directly affect their lives.

The creation of synergy groups at an early stage of the participant involvement program, especially in areas with heavy sour gas activity, assists in fostering a collective, amenable approach to energy development. To learn more about activities of synergy groups in 2003, see the article "Synergy: Communication, Cooperation, Convergence," on page 20.

THE FUTURE

One of the big questions to be addressed in the not-too-distant future is what happens after we have addressed the 87 recommendations of the Public Safety and Sour Gas initiative? We believe that the nature of this initiative will require not just the implementation and sustainability of the recommendations, but changing the way we do business. This includes continual self-assessment and self-improvement, so that the process never really comes to an end.

For the future of sour gas development, perhaps the greatest challenge facing both industry and the EUB is building strong relationships with the people of Alberta. There are three key points to consider when looking at the future of landowner-industry relations in Alberta:

- Keep the public informed. Industry must give as much information as possible, even if the public didn't ask for it, even if it's not explicitly required by regulations. This is a critical first step in establishing two-way understanding and respect.
- Don't notify. Consult. Industry must sit down at the kitchen table, talk about options, and try to understand the public's motivations and interests. In turn, the public must make an effort to understand industry's. Industry activity may affect how owners may use their land, so it is very important to look for mutually beneficial solutions.
- Be respectful. If industry works hard at the first two items, this third will more than likely come along naturally. Albertans want to be informed and be part of the process. The leases that industry purchases from government are permission from the people of Alberta to retrieve that resource, not ownership.

Finally, there is the issue of ongoing regulatory reform. As part of the Public Safety and Sour Gas initiative, we are constantly assessing what we do and how we do it, seeking the safest, best possible processes for sour gas development.

In Alberta, we are facing some interesting, almost contradictory challenges. On the conventional oil and gas side, we have a mature basin with declining reserves and an aging infrastructure. On the other hand, we are also embarking on the development of significant newer resources, such as the oil sands and coalbed methane. In the middle lies sour gas. While we have 50 years of sour gas experience behind us, we know there are significant reserves yet to be developed.

The EUB has to be flexible and adopt new methods in order to keep pace with our rapidly changing world. The Public Safety and Sour Gas initiative is an excellent example of the EUB maintaining momentum in working for Albertans and striving to meet our vision of inspiring public confidence in the regulator.

Appropriate Dispute Resolution Progress Report

WORKING FOR ALBERTANS

Momentum

APPROPRIATE DISPUTE RESOLUTION

The EUB's Appropriate Dispute Resolution (ADR) program has become the standard for encouraging participation in open dialogue to resolve conflict regarding energy issues in Alberta. Starting in early 2000, the EUB began developing the ADR program with the formation of a multiparty stakeholder committee. The committee recommended a regulatory framework for ADR and assisted in the development of *Informational Letter (IL) 2001-1: Appropriate Dispute Resolution (ADR) Program and Guidelines for Energy Industry Disputes*, which officially launched the ADR program on January 8, 2001, as a three-year pilot.

Now complete, the three-year pilot program has been extensively monitored and evaluated. The positive feedback and support have resulted in an ongoing ADR program that has evolved to meet the changing needs of landowners and industry.

Since the launch of the EUB ADR program three years ago, about

- 80 per cent of disputes addressed by ADR were resolved, and
- 95 per cent of participants said they would use ADR again.

Participant feedback illustrates the major benefits of ADR. These include improved relations, an improved understanding of the other party's concerns, and a faster and less expensive process for conflict resolution when compared to other options.

The EUB ADR program is used when concerns and objections remain outstanding following negotiations between landowners and companies or between companies (C2C). Most disputes resolved by the ADR process relate to proposed facility applications (wells, pipelines, and plants) or C2C equity applications, such as spacing, pooling, rateable take, and common carrier or processor.

ADR directly involves parties: they work collaboratively to reach mutually agreeable solutions. ADR helps parties understand resolution options and processes that will assist them in developing a clear understanding of their concerns, issues, and interests and then in jointly defining resolution options.

The two main components of the EUB's ADR program are EUB staff facilitation and third-party assistance from ADR professional service providers and mediators.

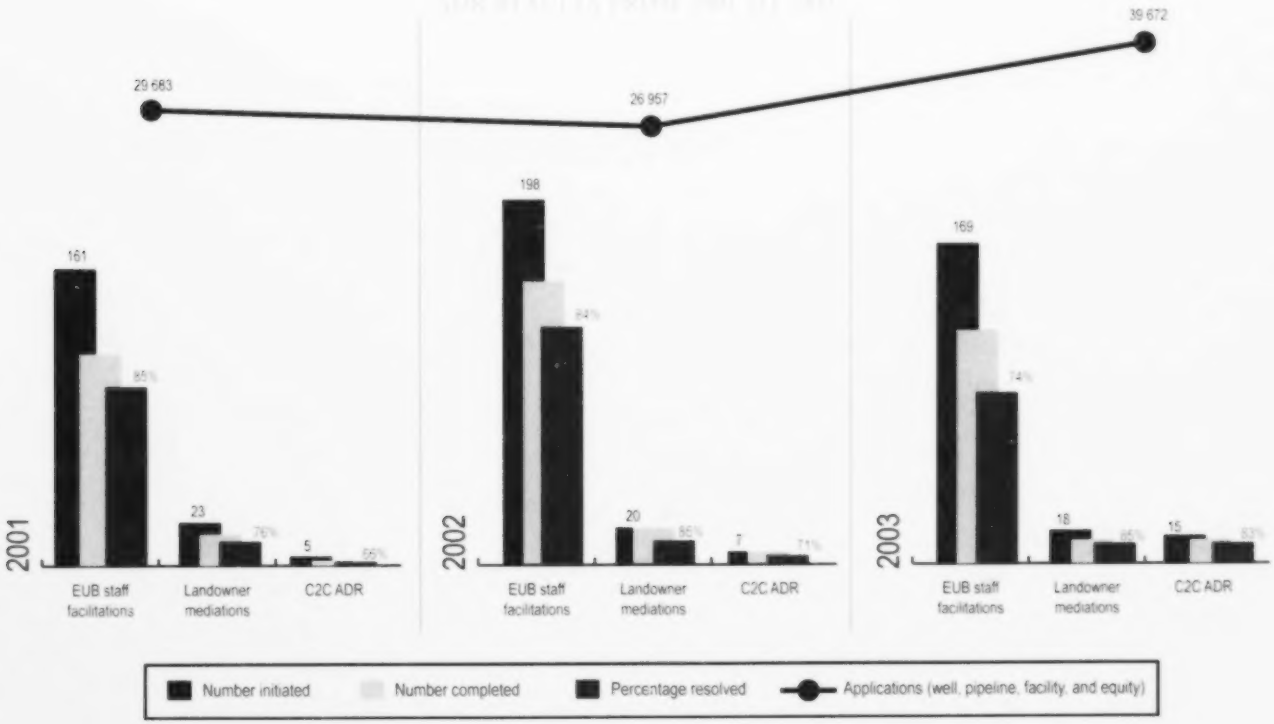
EUB staff assist parties in understanding regulatory requirements and facilitate meetings to discover mutually agreeable options. Staff facilitation usually occurs prior to a company submitting an application but after the company has attempted to resolve the concerns of stakeholders. Staff normally assist though direct meetings or by speaking with each of the involved parties.

Third-party professional service providers and mediators are used in more complex disputes to develop win-win outcomes. They may be used when there are concerns about deadlines, disputes involving multiple parties, or difficulties engaging other parties. The first step involving third-party professionals is a Preliminary ADR (PADR) meeting, at which parties, assisted by the professional, discuss procedures and reach agreement on how to proceed, which often involves mediation.

Use of the ADR program has been relatively constant despite significant variation in the number of applications received by the EUB annually. The chart below illustrates ADR results since 2001.

In an effort to improve the ADR program, the EUB asked all participants involved with PADR meetings and meditation to provide their feedback regarding the effectiveness of the program and the quality of the service provider, mediator, and EUB staff. We received feedback for 100 per cent of cases in 2003, compared to 92 per cent in 2002 and 83 per cent in 2001. Participants rated services on a scale of 1 to 5 (1 being very unsatisfactory and 5 being very satisfactory).

- Overall effectiveness of the program was rated as 4.1. Feedback indicated that parties that did not achieve resolution still believed the process was worthwhile.
- Quality of service provided by third-party ADR professionals was rated as 4.4.



The EUB expects applicants to identify parties that would potentially be affected by their proposed projects, notify them about the projects, and attempt to resolve any concerns they might have.

Most often, conflict arises and escalates because of the approach and treatment of one party by another. When conflict did arise, disputants indicated that they desired

- more consistent face-to-face communications,
- clear and concise information,
- improved timeliness of follow-up, and
- a less adversarial approach and a more "interest-based" approach.

With effective consultation, the number of conflicts and the need for ADR decrease. The 2003 edition of *Guide 56: Energy Development Applications and Schedules* reinforces and clarifies the importance of early and effective public engagement through the inclusion of participant involvement guidelines.

Effective efforts to engage all parties reduces and prevents conflicts

Effective consultation

Conflict resolution through ADR techniques

Need for ADR

In 2003, all participants in ADR indicated that EUB staff acted in a fair and impartial manner.

A consistent message from participants over the last three years has been the critical role of EUB staff. Participants have stated that they believe EUB staff add credibility, clarify regulatory requirements, and help to ensure that complete and reasonable agreements are reached. The average rating of the service provided by EUB staff in mediations since 2001 has been 4.4 out of 5. The ADR coordinator and the EUB's Field Surveillance Branch have initiated a Facilitation Framework Initiative to ensure that the quality of EUB service is maintained.

The purpose of the Preliminary ADR (PADR) meeting is to ensure that the parties make an informed decision on ADR requirements and options. Several unresolved disputes are linked to rushed or incomplete PADR meetings.

ADR service providers play a critical role in preparing parties for ADR. They assist the mediator in running the PADR meeting and ensuring that follow-up is clarified and strengthened. With the help of ADR service providers, several improvements have been made to the overall ADR program, including

- further assisting parties to understand ADR,
- clarifying the issues that need to be resolved,
- developing the agenda for the PADR meeting,
- using a standard process agreement,
- preparing the ADR professionals and participants to ensure a complete PADR meeting, and
- having service providers attend the PADR meeting to assist the parties.

The EUB ADR program uses the term "Appropriate" Dispute Resolution because parties should choose the best option for resolution at the PADR meeting. The effectiveness of this approach was demonstrated during 2003, when out of 15 C2C PADR meetings, 6 did not proceed to mediation. Four chose other ADR options, such as using third-party experts or resuming direct negotiations, and 2 chose an EUB hearing.

Since April 2002, an industry-initiated C2C ADR taskforce of more than 70 industry volunteers with a wide range of expertise and backgrounds has been creating improved negotiation and conflict management processes, contractual provisions, ADR guidelines, and ADR tools.

This initiative is the only known multidisciplinary business-driven ADR taskforce in North America.

Eight industry organizations, two regulators, and two ADR associations have endorsed the *C2C Taskforce Report*:

Alberta Energy and Utilities Board
National Energy Board
Canadian Association of Petroleum Producers
Small Explorers and Producers Association of Canada
Canadian Association of Petroleum Landmen
Canadian Association of Petroleum Land Administration
Canadian Gas Processors Association
Petroleum Accountants Society of Canada
Petroleum Joint Venture Association
Calgary Chamber of Commerce
ADR Institute of Canada
Alberta Arbitration and Mediation Society

A C2C ADR Council will be formed to assist in creating awareness about the various ADR tools and techniques recommended by the taskforce. The report was released in spring 2004.

A regulatory alignment team conducted interviews with 31 companies that chose the regulatory process, including hearings, to resolve their disputes. All companies agreed that the regulatory processes should be used as a last resort. However, many companies indicated they had no choice, as they were unable to meet or negotiate or were concerned about tactics used by the other party, such as involving individuals with limited authority, withholding information, and abuse of the regulatory process.

The EUB agrees with the recommendations of the taskforce regarding regulatory enhancements:

- strongly encouraging companies to endorse and use the C2C dispute resolution tools and techniques prior to selecting regulatory options;
- clarifying the need and timing of a hearing early in the application process, requiring exchange of submissions to ensure early and effective use of the PADR meeting and the sharing of pertinent information, and conducting the ADR process in parallel with the hearing process; and
- considering cost recovery from one company to the other where there is apparent abuse of the hearing process.

Complete details of the interview results and recommendations are in the *C2C Taskforce Report*, available via a link on the EUB's Web site at <www.eub.gov.ab.ca>.

The high number of disputes resolved and participant satisfaction continued in 2003. Overall, 78 per cent of disputes addressed by the program in 2003 were resolved. The results for the two main components of the EUB ADR program are

EUB Field Staff Facilitations – 74 per cent resolved

- 169 landowner cases: 127 completed, with 94 resolved

Third-Party ADR Professional Assistance – 84 per cent resolved

- 18 PADR meetings with landowners: All selected mediation—13 completed, with 85 per cent resolved
- 15 C2C PADR meetings
  - 9 selected mediation: 8 completed, with 75 per cent resolved
  - 4 selected other ADR options, with 100 per cent resolved
  - 2 agreed that their best option was to proceed to a hearing

In situations where ADR does not result in a full resolution, an EUB hearing is often required. The EUB held 19 energy hearings in 2003. Only one of the applications related to these hearings had proceeded through the ADR program prior to the hearing. In fact, 14 scheduled hearings were cancelled as a result of successful ADR activities.

In 2003, there was strong user support for continuing the ADR program, with 95 per cent indicating they would participate in ADR again and 94 per cent indicating they would tell others to use ADR.

When questioned about their specific ADR process:

- 85 per cent indicated the process was worthwhile. Participants stated that understanding increased and relations improved as a result of the process.
- 85 per cent ranked the quality of EUB staff service in ADR to be satisfactory or better. Most participants emphasized that it is critical that EUB staff participate in ADR to ensure complete resolution and to add credibility to the process.
- 93 per cent ranked the service provider and mediator service as satisfactory or better.

The EUB's Evy Schmidt and Karine Fisher participate in mediations to assist in the resolution of concerns and objections between consumer (C2C).

2003 RESOLUTION RESULTS

11 LANDOWNER/INDUSTRY DISPUTES

About 1 per cent (431) of all facility applications (wells, pipelines, and facilities) in 2003 were submitted with outstanding landowner objections. Landowners objected to 13 per cent of the 909 spacing applications. These objections and disputes require significant time and effort to process and resolve by landowners, industry, and EUB staff. Not included in the statistics are the disputes resolved through facilitation efforts of EUB field staff prior to the application submission.

EUB staff facilitations

Of the 169 EUB staff facilitations under way in 2003, 127 were completed and 94 were resolved: a 74 per cent success rate.

- The resolution rate for staff facilitation has decreased from 84 per cent in 2002 and 85 per cent in 2001 to 74 per cent in 2003. Of the unsuccessful field facilitations, 14 proceeded to mediation and 9 were resolved.
- As part of continuous improvement efforts, the ADR coordinator and the Field Surveillance Branch have initiated a Facilitation Framework Initiative to investigate delivery options and requirements and to develop a more formal EUB framework for staff ADR services.

Third-party ADR professional assistance

In 2003, 18 PADR meetings were held and all proceeded to mediation. Thirteen mediations were completed, of which 11 were resolved, for a success rate of 85 per cent.

- Two mediations did not reach full resolution. In one case the EUB Board cancelled the hearing and in the other the issue proceeded to hearing.

2) COMPANY-TO-COMPANY (C2C) DISPUTES

About 15 per cent of C2C equity applications (956 applications regarding spacing, pooling, rateable take, and common carrier or processor) were filed with outstanding industry objections. The vast majority of these were related to spacing or pooling issues. No staff facilitations were conducted on C2C disputes. The submission of an equity application with company objections initiates the more formal component of the ADR program, which commences with a required PADR meeting.

Third-party ADR professional assistance

15 PADR meetings were initiated. At the conclusion of the meetings, the parties agreed on a course of action:

- 2 cases concluded that a hearing was appropriate.
- 13 cases decided to proceed with ADR: 12 were completed and 10 were resolved, for a resolution rate of 83 per cent.
  - 2 cases used third-party experts: One used an arbitrator and the other used a technical consultant to assist in the resolution.
  - 2 decided they should resume direct negotiations based on the outcome of the PADR meeting. Both reached resolution.
  - 9 chose mediation. 8 were completed in 2003, of which 6 were resolved (75 per cent). One case held another PADR meeting several months later and then decided on binding arbitration, while the second case did not proceed any farther, as the company was sold.

Two C2C cases delayed their PADR meetings until several weeks from the start date of a hearing. They did not proceed through ADR because their lawyers felt the hearing was the only option. Early planning and effective interest-based negotiations with earlier PADR discussions, as recommended by the C2C taskforce, may have avoided the hearing and ongoing problems in these cases.

Over the last three years, the ADR Multiparty Stakeholder Committee played a key role in monitoring and ensuring continuous improvement of the EUB ADR program. Many of the committee members also participated in the C2C taskforce. The Stakeholder Committee members have agreed to continue to meet regularly to discuss ADR processes, consider issues, provide recommendations to further enhance the ADR programs, and maintain an EUB roster of service providers and mediators.

Some matters the committee will consider are briefly described below.

Several ADR events in 2003 did not result in resolution due to the approach taken by landowner advisors. Some companies are now reluctant to enter into future ADR meetings should certain advisors be involved. At the same time, landowners indicate they need qualified and knowledgeable advisors to assist them in their direct negotiations with landmen and that these advisors are few in number. In 2004, the committee is exploring options to address these stakeholder concerns.

Generally, service providers dealt effectively in 2003 with concerns regarding multiparty disputes that had been raised in 2002 through early dispute resolution planning and thorough PADR meetings.

The average cost of ADR services (costs of the service provider, mediator, and various arrangements) has been steadily increasing, mainly due to increased travel, the need for increased planning, coaching, and the level of assistance needed from the service provider.

- On average, it cost $3900 to arrange and hold a PADR meeting in 2003, up from $3100 in 2002 and $1200 in 2001.
- In 2003 it cost an average of $4900 to complete mediation, compared to $3500 in 2002 and $4300 in 2001.

Landowner cases typically cost more because of travel and service provider preparation with the parties. Multiparty cases and cases dealing with complex issues often require additional meetings and therefore cost more.

ENSURING THAT ADR TIMELINES DO NOT INCREASE

The average timelines to initiate and complete an ADR undertaking have remained relatively consistent over the last three years:

- 20 days to PADR meeting from initial contact with service provider, with an average PADR duration of 2.5 hours;
- 4 days from PADR meeting to the mediation meeting, with an average mediation duration of 8 hours.

CONTINUING AWARENESS OF ADR AND STAKEHOLDER EDUCATION

Industry personnel are generally aware of the EUB ADR program. The majority of questions now relate to how companies can effectively use the program. The ADR coordinator continues to spend a significant amount of time working with industry associations and companies, presenting ADR material, and answering specific questions.

The need to promote and educate stakeholders continues. The rollout of the *C2C Taskforce Report* and its ADR tools and techniques will assist in this regard. The taskforce will also be forming an ADR education committee to develop training for industry. A trial two-day ADR training session is planned with a landowner group using the EUB ADR training material; this has potential for future use with other public groups.

APPROPRIATE DISPUTE RESOLUTION
MULTIPARTY STAKEHOLDER COMMITTEE

Bill Remmer, ADR Coordinator, EUB, committee Chairman
Wayne Gent, Sundre Petroleum Operators Group
(a synergy group)
Bob Gaines, Canadian Association of Petroleum Landmen
Dave Gould, mediation community
Alan Holt, Wild Rose Agricultural Producers
Judy Huntley, Alberta Environmental Network
Mark Johns, electric industry
Dean Lien, Farmers Advocate
Diana Pane, Canadian Association of Petroleum Producers
Dave Savage, Small Explorers and Producers Association of Canada
Stan Schumacher, Surface Rights Board
Stuart Simpson, mediation community
Arden Berg, EUB Board Sponsor
Stephen Smith, EUB Advisor

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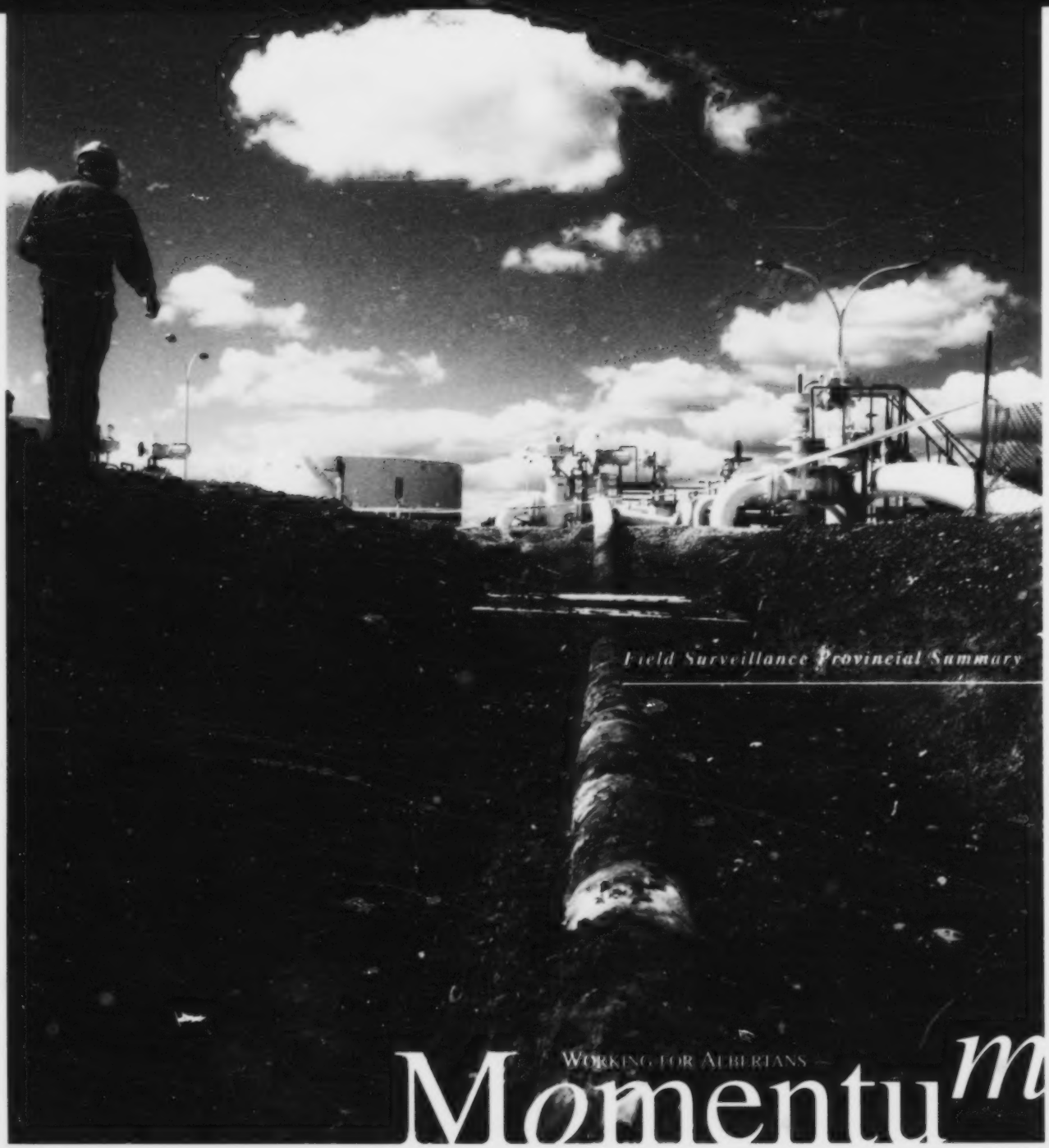

Field Surveillance Provincial Summary
WORKING FOR ALBERTANS
Momentu m

The EUB oversees the safe, responsible development of Alberta's energy resources. To ensure that energy projects are constructed and operated safely, the Field Surveillance Branch annually inspects a portion of Alberta's 180 000 operating wells, 16 500 oil batteries and associated satellites, 733 gas plants, 8365 gas batteries, and over 330 000 km of pipelines. EUB field staff enforce standards and conditions set out in licences, approvals, and EUB regulations and requirements using a prioritized inspection system referred to as OSI, which is based on *o*perator performance, sensitivity of the location, and *i*nherent risk of the operation.

Operating out of eight EUB Field Centres throughout Alberta, field staff inspect construction, operation, and abandonment operations at oil, gas, and oil sands facilities (including pipelines, compressors, and processing plants). They respond to emergencies and public complaints on a 24-hour basis and ensure a consistent approach to enforcement of requirements with noncompliant operators.

The Field Surveillance Branch also spends considerable time facilitating the resolution of landowner-industry conflicts and participating in public-industry liaison committees in an effort to reach mutually agreeable solutions between landowners and energy companies.

In the year ahead, Field Surveillance staff will continue to focus on pipeline corrosion, noncompliant licensees, air monitoring activities, facilitation, reduction of odours, and improving communication with synergy groups and other communities throughout the province.

The percentage of satisfactory inspections increased to 71.5 per cent in 2003 from 70.6 per cent in 2002. The minor unsatisfactory inspection percentage remained constant at 25 per cent, while the overall percentage of major unsatisfactory inspections decreased from 3.9 per cent in 2002 to 3.0 per cent in 2003, about a 25 per cent improvement.

The EUB is confident that most Alberta energy industry operators strive to comply with EUB regulations, requirements, and programs. However, companies that fail to meet requirements or follow EUB direction are subject to escalating enforcement consequences. Enforcement actions always include deadlines for fixing a problem and may be reinforced by penalties, such as temporary or long-term suspension of operations.

In 2003, the EUB needed to suspend 110 facilities from operation until the problem was rectified, compared to 128 in 2002, a 14 per cent decrease. The cost to industry of suspensions also decreased, to $10.2 million, versus $25.8 million in 2002.

DEFINITIONS

- A satisfactory inspection finds that all regulations and requirements are met.
- A minor unsatisfactory inspection finds a contravention of regulation(s) and/or requirement(s) that does not result in a direct threat to the public and/or the environment and does not adversely affect oil and gas operations.
- A major unsatisfactory inspection finds a contravention of regulation(s) and/or requirement(s) that an operator has failed to address and/or has the potential to cause an adverse impact on the public and/or the environment.
- A serious unsatisfactory inspection finds a total disregard for regulation(s) and/or requirement(s) that is causing or may cause significant impact on the public and/or the environment.
- Blows are the unexpected release of wellbore fluids into the atmosphere, while blowouts are the complete loss of control of the flow of fluids from a well. During drilling operations, any unexpected entry of water, gas, oil, or other formation fluid into a wellbore that is under control and can be circulated out is called a kick.

Drilling and servicing in Alberta over the last five years have been extremely active, with over 70 000 wells drilled. This has resulted in many challenges for both industry and the EUB to ensure the drilling and servicing of wells safely with minimal impact to the environment and public.

Blows and blowouts during drilling and servicing operations are among the most serious incidents for well operations and have the potential to cause public safety and environmental impacts. The EUB regards the number of blows, blowouts, and kicks as a primary indicator of industry's drilling and servicing performance and pays particularly close attention to industry's response to these incidents.

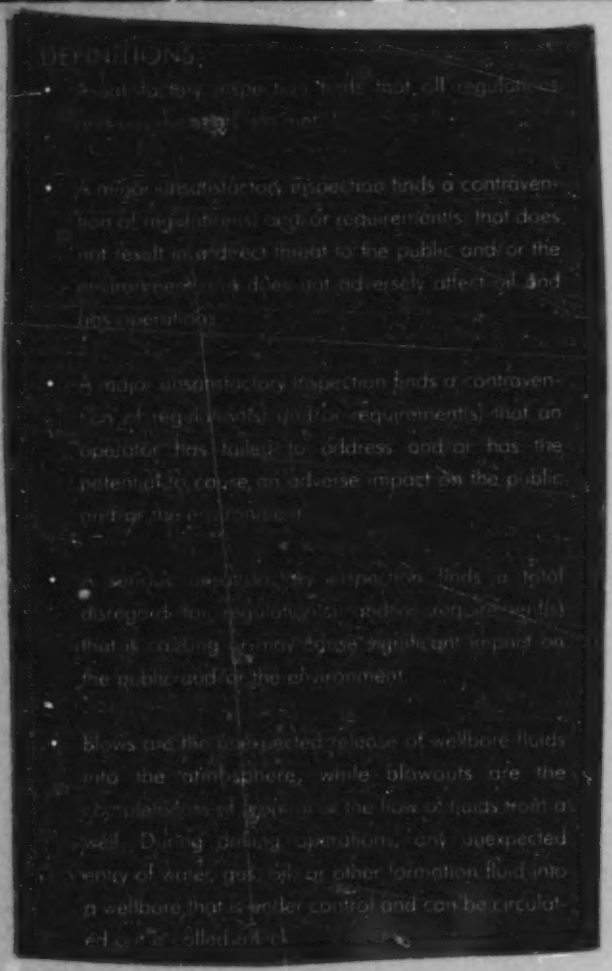
Requirements for high training standards and sophisticated blowout detection and prevention equipment have helped to keep well control occurrences to a minimum. Of the approximate 18 200[1] wells drilled in 2003, the EUB recorded:

- 1 blowout and 3 blows during drilling, compared to 6 blowouts and 0 blows in 2002, and
- 4 blowouts and 7 blows during servicing, versus 5 blowouts and 2 blows in 2002.

All were brought under control with minimal environmental damage and no public safety impacts. The EUB will continue to review all blows and blowouts related to drilling and servicing operations to identify changes to equipment, procedures, and regulations that may be required to reduce drilling and servicing blows and blowouts.

The 106 kicks recorded in 2003 equate to a kick occurrence rate of approximately 6 kicks per 1000 wells drilled. The kick occurrence rate has remained relatively constant for the last five years and is a significant improvement from the years prior to 1997/1998, when the rate averaged 23 kicks per 1000 wells drilled.

[1] For the purposes of this report, drilling activity includes wells that have finished drilling, cased and suspended wells, oil sands thermal wells that were not completed in 2003.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There were 1766 inspections completed on gas processing facilities in 2003, including 15 operational audits. This was a decrease in inspections compared to the 2170 inspections conducted in 2002. The major unsatisfactory inspection percentage rate for gas plants and batteries decreased to 1.6 per cent in 2003 from 2.3 per cent in 2002, a 30 per cent improvement. The improved compliance can be attributed to industry's improved understanding of EUB requirements, self-audits, operator awareness sessions, and presentations by EUB staff.

Corrosion continues to be the main cause of pipeline failures, and staff investigate 100 per cent of corrosion failures. While not all corrosion failures are physically inspected, EUB staff follow up on all failures through an investigation into the incident. Internal corrosion failures decreased to 350 in 2003 from 447 in 2002, a 21.7 per cent decrease. In addition, external corrosion failures decreased to 86 in 2003 from 116 in 2002, a 25.9 per cent decrease. These significant decreases are attributed to failure mechanisms being investigated and mitigation measures implemented by licensees. EUB field staff conducted a total of 468 inspections on pipeline failure/hits in 2003, compared to 516 in 2002.

In 2003, there were 451 satisfactory inspections, 4 minor unsatisfactory inspections, 12 major unsatisfactory inspections, and 1 serious unsatisfactory inspection. In 2002, there were 456 satisfactory inspections, 14 minor unsatisfactory inspections, 46 major unsatisfactory inspections, and no serious unsatisfactory inspections.

The significant decrease in major unsatisfactory inspections of some 74 per cent is attributed to the implementation of *Guide 66: Pipeline Inspection Manual*, which details EUB requirements and enforcement action when a noncompliance occurs.

EUB field staff conducted 439 pipeline construction/test inspections in 2003, of which 405 were satisfactory (92.3 per cent of total, up from 283, or 85.8 per cent, in 2002), 25 were minor unsatisfactory (5.7 per cent, down from 40, or 12.1 per cent, in 2002), and 8 were major unsatisfactory (essentially unchanged from 2002), with 1 serious unsatisfactory inspection.

A total of 1381 spills were reported to EUB Field Centres in 2003, a decrease of 4.4 per cent from 1445 in 2002. Of the 1381 spills:

- 57 were priority 1—greatest potential for environmental and/or public impacts (4.1 per cent),
- 264 were priority 2—significant volume of product released or the potential for environmental impacts (19.1 per cent), and
- 1060 were priority 3—low or medium volumes (76.8 per cent).

It is important to note that more than three-quarters of all spills were low volume and were usually contained on lease. Inspections were conducted on 506 spills. There were 474 satisfactory spill inspections, 12 minor unsatisfactory spill inspections, 20 major unsatisfactory inspections, and no serious unsatisfactory inspections. This compares to 631 inspections conducted in 2002, when 23 minor unsatisfactory spill inspections, 14 major unsatisfactory spill inspections, and no serious unsatisfactory spill inspections were identified. Spill volumes of hydrocarbon and produced water in 2003 were 5268.3 m^3 and 15 605 m^3 respectively. This is an increase in hydrocarbon volume from 5188.8 m^3 in 2002 and a decrease in produced water spilled from 19 164 m^3 in 2002.

AIR MONITORING

In 2003, the EUB's two mobile air monitoring units conducted a total of 695 inspections, compared with 461 the previous year. The percentage of unsatisfactory inspections decreased from 8.7 in 2002 to 4.7 in 2003, a 47 per cent improvement.

Industry continues to improve its compliance record with respect to reducing emissions from oil and gas facilities. The leading sources of emissions were leaking tank hatches, tank truck loading and unloading, and inadequate maintenance.

Karen Hauck and Al Gehrt, field inspectors, respond to the public complaints about the EUB's jurisdiction.

WASTE MANAGEMENT FACILITIES

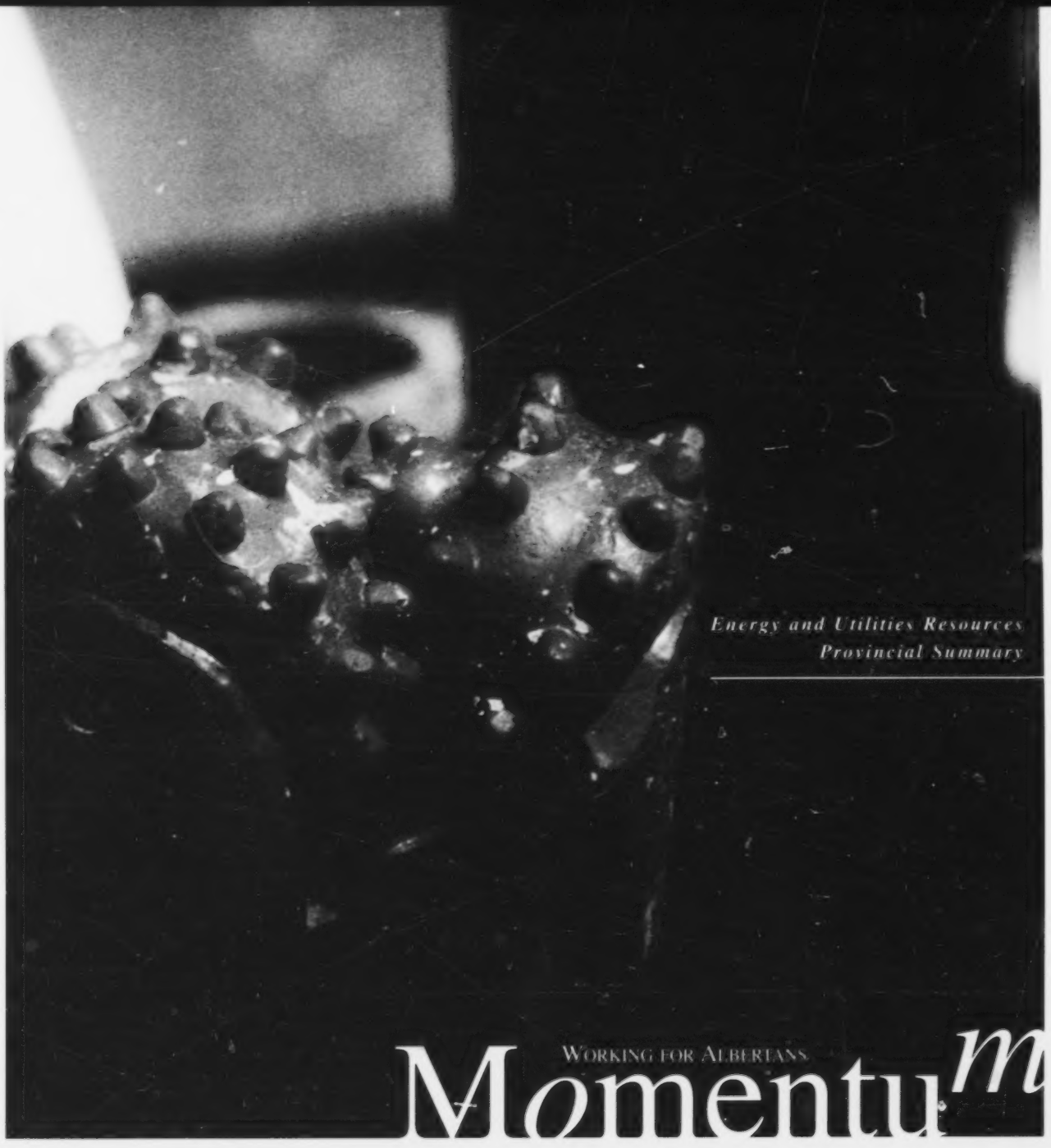
In 2003, field staff inspected 72 waste management facilities, which resulted in 4 major and 1 serious unsatisfactory inspections. This compares to 65 waste management inspections conducted in 2002, resulting in 6 major unsatisfactory inspections. Off-lease odours, failure to meet *Guide 55* storage requirements, and staining/spillage were the most common deficiencies identified.

RESPONDING TO PUBLIC CONCERNS

Field Surveillance staff respond to all complaints within our jurisdiction, with the focus on ensuring prompt, effective, and lasting resolution of any problem identified.

In 2003, the EUB received and responded to 817 public complaints, compared to 869 in 2002, a decrease of 6 per cent. Since a number of complaints involved more than one concern, the EUB identified 921 issues associated with the 817 complaints, compared to 1019 issues in 2002. Last year, 88 per cent of individuals surveyed were satisfied with the response from the EUB, compared to 91 per cent in 2002.

For more information on the EUB's Field Surveillence activities including inspections, enforcement actions, and subsequent industry compliance, refer to *Statistical Series (ST) 2004-57: Field Surveillence Provincial Summary.*

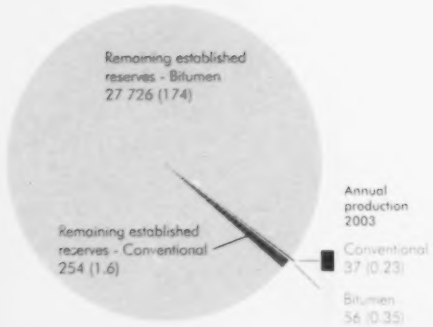


Energy and Utilities Resources
Provincial Summary

WORKING FOR ALBERTANS

Momentum

Alberta's Crude Bitumen Remaining Reserves and Production, Compared to Conventional Remaining Reserves and Production

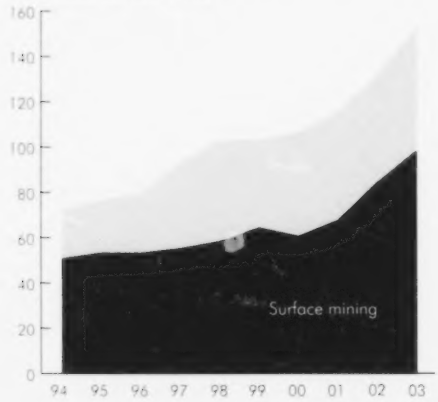

Remaining established reserves - Bitumen 27 726 (174)
Remaining established reserves - Conventional 254 (1.6)
Annual production 2003
Conventional 37 (0.23)
Bitumen 56 (0.35)

Alberta has the largest oil sands resource in the world. Current estimates indicate that about 28 billion cubic metres (m^3) (174 billion barrels [bbl]) of bitumen are recoverable with today's technology and economic conditions.

Annual production of bitumen and conventional crude oil is just a sliver of the existing bitumen reserves. Alberta is at a relatively early stage in the likely long life history of the oil sands resource.

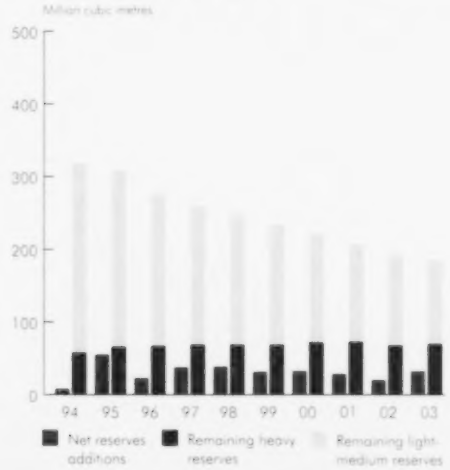
Bitumen reserves are not expected to change significantly over the short term, as the challenge in oil sands development is not finding the bitumen, but recovering it cost effectively.

Alberta Crude Bitumen Production



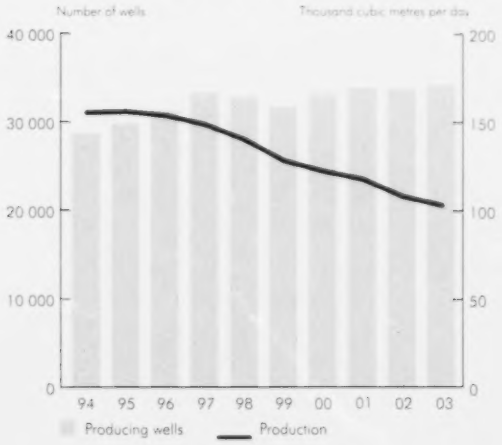
Bitumen production has more than doubled in the past 10 years. In 2003, the production of bitumen was approximately 153 thousand m^3 per day (m^3/d) (965 thousand bbl/d). Surface mining accounted for about 64 per cent and in situ accounted for about 36 per cent of the total bitumen production (see page 22 for a description of surface mining and in situ technology). From surface mineable bitumen, about 86 thousand m^3/d (540 thousand bbl/d) of synthetic crude oil was produced.

Net Reserves Additions and Remaining Reserves of Conventional Crude Oil



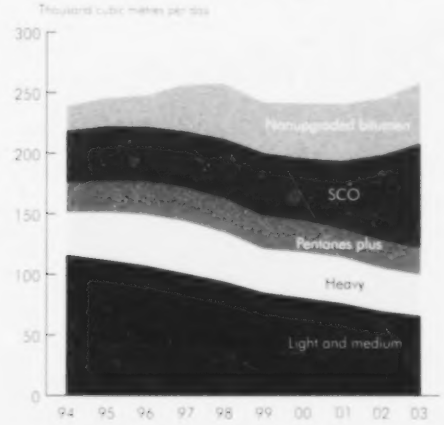
Some 31 million m^3 (194 million bbl) of crude oil were added to Alberta's recoverable reserves in 2003. Additions are a result of discovering new reserves and revising reserves that have already been discovered. Production in 2003 outstripped additions, contributing to a 2.5 per cent decrease in the remaining established reserves of crude oil to 254 million m^3 (1.6 billion bbl). This reserve is composed of 73 per cent light-medium and 27 per cent heavy crude.

Conventional Crude Oil Production and Producing Oil Wells



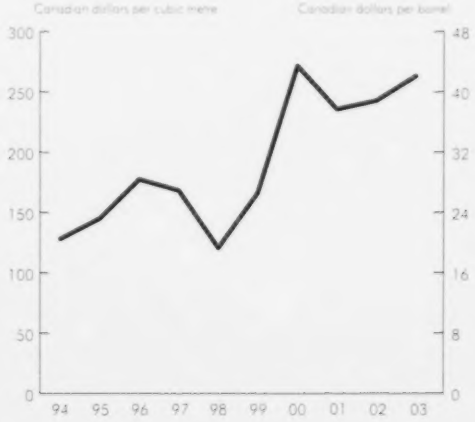
Over the past several years, production of crude oil has declined in Alberta. In 2003, total crude oil production declined to about 100 thousand m^3/d (630 thousand bbl/d), a decline of 5 per cent.

Alberta Supply of Crude Oil and Equivalent

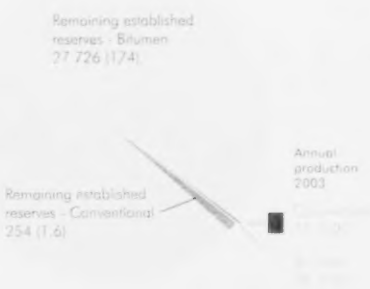


As production of light-medium and heavy crude oil has decreased, nonupgraded bitumen and synthetic crude oil (SCO) production has increased. In 2003, total production of crude oil and equivalent increased 5 per cent over 2002 levels.

Average Price of Oil at Alberta Wellhead



Alberta's Crude Bitumen Remaining Reserves and Production, Compared to Conventional Remaining Reserves and Production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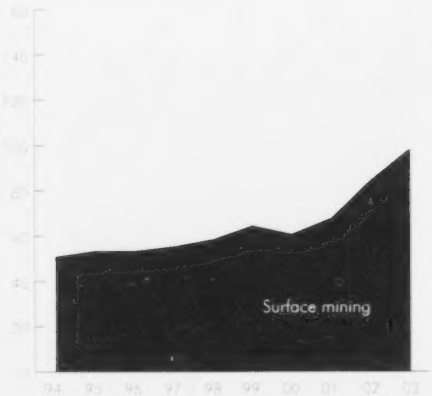

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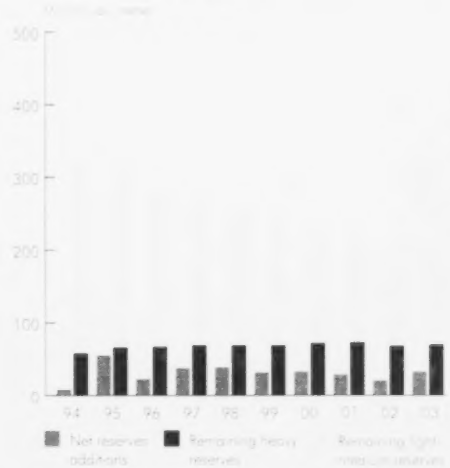

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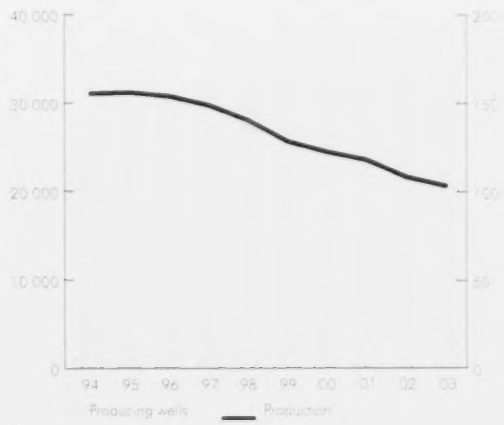

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Alberta Supply of Crude Oil and Equivalent

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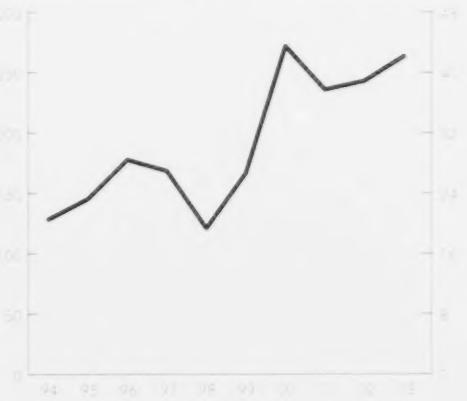


In 2003, the price of oil at the Alberta wellhead averaged $259.71/m^3 in Canadian dollars ($41.27/bbl). This is an 8 per cent increase over the 2002 price of $239.27/m^3 ($38.02/bbl). For 2003, the price was highest in February, at $322.76/m^3 ($51.29/bbl), and lowest in October, at $228.77/m^3 ($36.35/bbl).

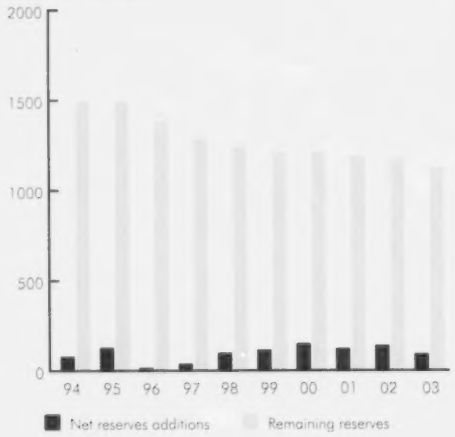
Deliveries of Crude Oil, Crude Bitumen, Synthetic Crude Oil, Condensate, and Pentanes Plus

Percentage of deliveries

In 2003, 76 per cent of Alberta's crude oil, crude bitumen, synthetic crude oil, condensate, and pentanes plus was delivered to other provinces and the U.S.A.

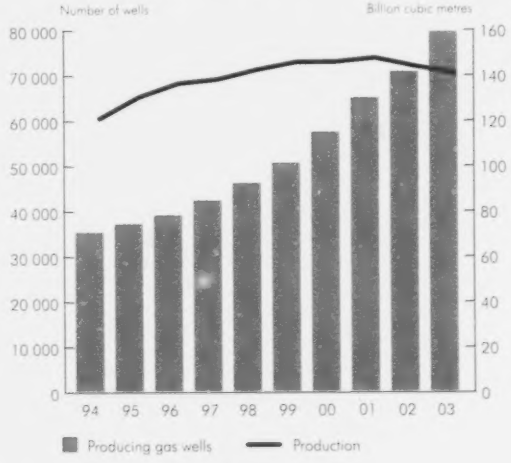
Marketable Gas:
Net Reserves Additions and Remaining Reserves

Billion cubic metres



Some 87 billion m^3 (3.1 trillion cubic feet [cf]) of marketable gas were added to Alberta's recoverable reserves in 2003. Additions are a result of discovering new reserves and reassessing reserves already discovered. Production in 2003 outstripped additions, contributing to an overall decrease of about 4 per cent in the remaining established reserves of marketable gas to 1122 billion m^3 (40 trillion cf) as of year-end 2003.

Marketable Gas Production and Producing Gas Wells

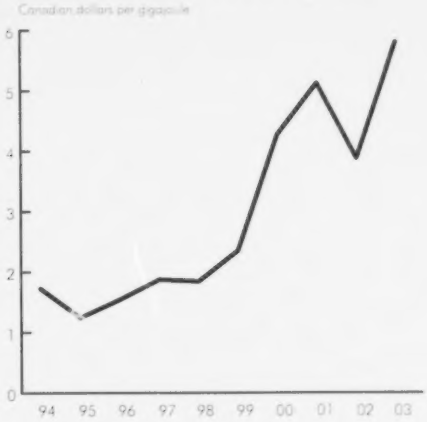


The number of producing gas wells has increased significantly year over year, while gas production has begun to decline after reaching its peak in 2001. It now takes an increasing number of new gas wells each year to offset production declines in existing wells. This is due in part to the large number of new wells in southeastern Alberta, where well productivity is low.

In 2003, a record number of gas wells were drilled, while marketable gas production fell by some 2 per cent over last year.

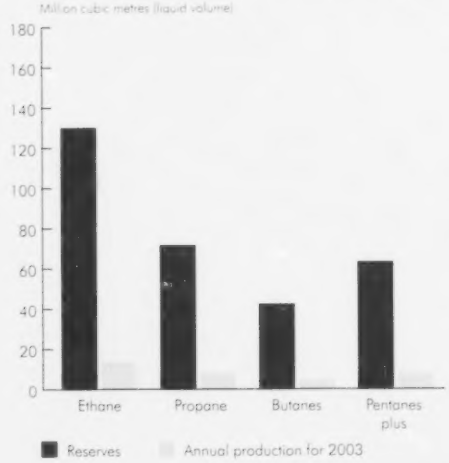
Included in marketable gas production is coalbed methane (CBM) production. Cumulative CBM production since 1977 is estimated to be about 155 million m^3 to year-end 2003, with an estimated 100 million m^3 or more of that having been produced in 2003.

Average Price of Natural Gas at Plant Gate



In 2003, the average price of natural gas at the plant gate increased to $5.80/gigajoule (GJ) ($6.12/thousand cf) from $3.88/GJ ($4.09/thousand cf) in 2002. For 2003, the price was highest in March, at $8.94/GJ ($9.43/thousand cf), and lowest in November, at $4.60/GJ ($4.85/thousand cf). This overall annual increase reflects the trend of higher natural gas prices.

Natural Gas Liquids: Remaining Reserves Expected to Be Extracted and Annual Production for 2003

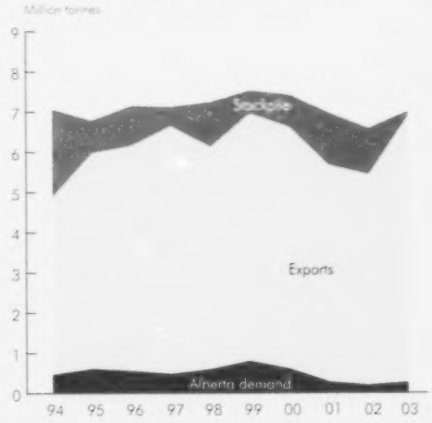


Production of all natural gas liquids in 2003 was virtually unchanged from 2002. Overall, remaining natural gas liquids reserves declined by 17 per cent.

Deliveries of Gas

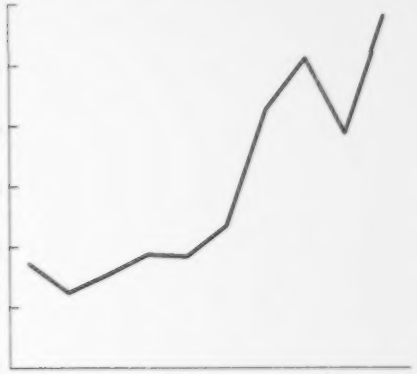
In 2003, 73 per cent of Alberta's gas was delivered to other provinces and the U.S.A.

Alberta Sulphur Production and Demand



In 2003, preliminary estimates indicate demand for sulphur within Alberta was only about 0.3 million tonnes. It was used in production of phosphate fertilizer and kraft pulp and for other chemical operations.

Average Price of Natural Gas at Plant Gate



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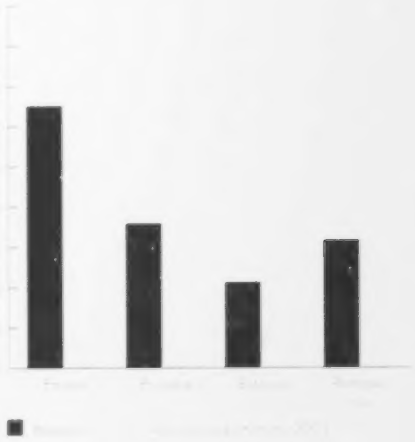

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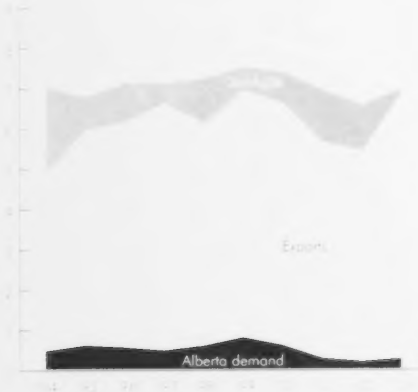


In 2003, preliminary estimates indicate demand for sulphur within Alberta was only about 0.3 million tonnes. It was used in production of phosphate fertilizer and kraft pulp and for other chemical operations.

Because elemental sulphur is fairly easy to store, imbalances between production and demand have traditionally been accommodated through adding to or removing from sulphur stockpiles.

Deliveries of Sulphur

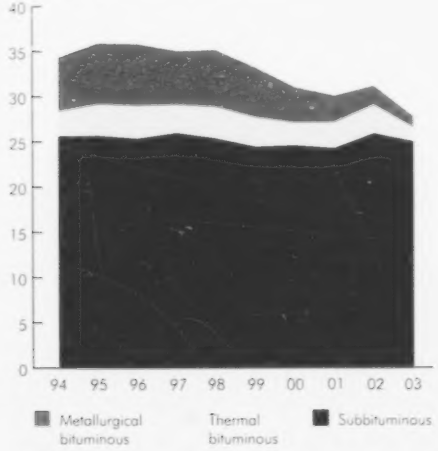
Percentage of deliveries

In 2003, preliminary estimates indicate approximately 97 per cent of sulphur marketed by Alberta producers was shipped outside the province, primarily offshore.

The current estimate for remaining established reserves for all types of coal is about 34 million tonnes. This massive resource continues to help meet the energy needs of Albertans, supplying fuel for about 66 per cent of the province's electricity generation. Alberta's coal reserves represent about 1000 years of supply at current production levels.

Alberta Marketable Coal Production

Million tonnes



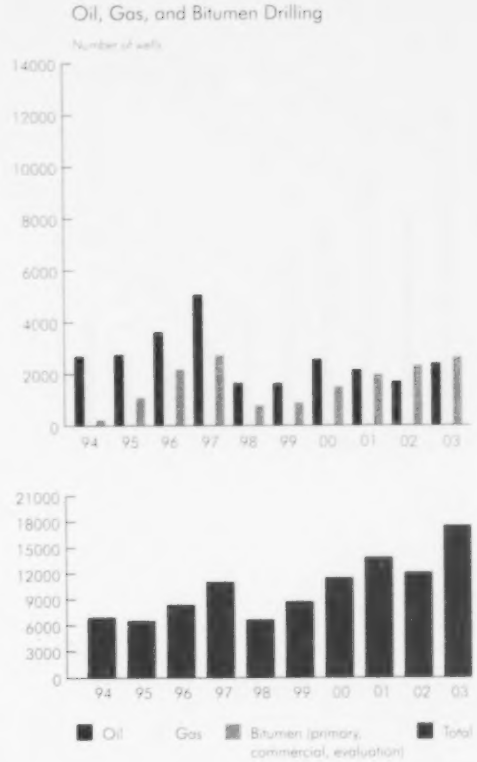
Alberta marketable coal production totalled about 28 million tonnes in 2003, an approximate 10 per cent decrease from 2002.

Deliveries of Coal

Percentage of deliveries

In 2003, 90 per cent of Alberta's coal production stayed in the province, while just under 10 per cent was delivered offshore. Very small quantities of thermal bituminous coal were delivered to other Canadian provinces and the U.S.A.

For more information on reserves, supply, and demand, including forecast information, see *ST 2004-98: Alberta's Reserves 2003 and Supply/Demand Outlook 2004-2013*. For more information on resource deliveries, see *ST-3: Alberta Energy Resource Industries Monthly Statistics*. Information regarding coal production and deliveries is in *ST-26: Alberta Coal Industry Monthly Statistics*, and coal reserves information is in *ST-31: Reserves of Coal*.



The year 2003 set a record for drilling. In total, about 18 200 oil, gas, and oil sands wells were drilled in Alberta in 2003 (including about 745 wells that were abandoned, dry, and other), a 42 per cent increase from 2002, which had experienced a 15 per cent decrease from 2001.

In 2003, conventional oil drilling increased by 42 per cent, rebounding after a 25 per cent decrease in 2002. Gas drilling increased by 54 per cent, again a rebound from a 17 per cent decrease in 2002. Oil sands drilling increased by 13 per cent, continuing its growth trend that began in 1999 after a sharp decline in drilling in 1998. Of the oil sands drilling in 2003, 38 per cent was for new bitumen primary and commercial wells and 62 per cent was for oil sands evaluation wells.

The EUB issued 21 075 well licences in 2003, 6660 more than in 2002. Looking back, 14 415 well licences were issued in 2002, 17 136 well licences in 2001, 16 569 in 2000, and 11 156 in 1999.

About 85 to 90 per cent of licensed wells are drilled each year, thus the discrepancy between the number of licences and actual drilling activity. Licensed wells include new wells, the resumption or deepening of existing wells, and re-entry of abandoned wells.

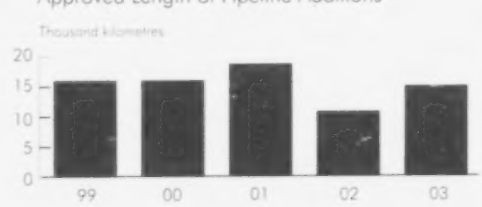
CBM wells are included in well licences. CBM drilling has increased in recent years. Cumulatively since 1977, about 1000 CBM wells have been drilled, about 700 of which were completed in 2003.

The EUB is currently refining the tracking process for verifying CBM wells and, as part of this work, has implemented a CBM code on well licence applications for wells targeting production from coal seams.

For more information on CBM activity in Alberta, see *EnerFAQs 10: Coalbed Methane*. For more information on drilling activity in Alberta, see *ST-59: Alberta Drilling Activity Statistics*.

In 2003, the EUB approved construction permits for 15 047 km of pipelines wholly within Alberta, compared to 10 799 km in 2002. These permits allowed for the total length of intra-Alberta pipelines to increase to 332 464 km.

For more information on Alberta's pipelines, see the pipeline section of *ST 2004-57: Field Surveillance Provincial Summary*.



This total length was calculated by adding all pipeline statuses (including operating, permitted, abandoned, discontinued, and suspended) for all types of pipelines. Pipelines crossing an Alberta border are regulated by the National Energy Board and are not included in these numbers.

SOLUTION GAS FLARING AND VENTING

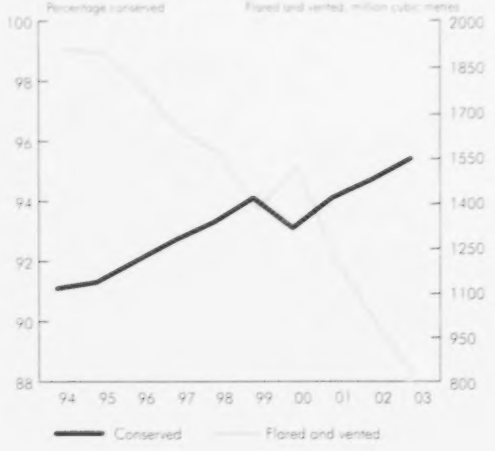
The EUB reports flared and vented volumes of gas for various upstream oil and gas industry sources, such as well tests, gas plants, gas gathering systems, transmission lines, and oil, bitumen, and gas batteries. Industry has made considerable progress in reducing flaring and venting volumes from all upstream oil and gas sources, with a 36 per cent decrease from 2000 volumes.

Solution gas, or gas that is separated from oil and bitumen production, is the largest source of flaring and venting in Alberta. It accounted for about 61 per cent of the total in 2003.

The volume of solution gas produced in 2003 was 18 160 million m^3 (644 566 million cf), a decrease of 6 per cent from 2002. This decrease in production of solution gas can be attributed to a decrease in conventional oil production, which tends to contain more solution gas, and an increase in situ bitumen production, which tends to contain less solution gas.

In 2003, volumes of solution gas flared and vented continued to decline, while solution gas conservation, or the recovery of solution gas for use as fuel, power generation, sale, or injection into an oil or gas pool, increased.

Solution Gas Conserved, Flared, and Vented



The volume of solution gas flared and vented declined from the 1996 volume of 1808 million m^3 (64 173 million cf) to 843 million m^3 (29 921 million cf) in 2003, an overall decrease of 53 per cent and a decrease of 17 per cent from 2002.

A record 95.4 per cent solution gas conservation rate was achieved in 2003, compared to 94.7 per cent in 2002.

The flaring of solution gas has been reduced to 408 million m^3 (14 481 million cf) in 2003. This is a reduction of 70 per cent from the 1996 flaring baseline (1340 million m^3 [47 562 million cf]).

Solution Gas Flaring Reduction Schedule

Year	Firm target reduction (%)	Actual reduction (%)
2000	15	38
2001	25	53
2002	50	62
2003	None established	70

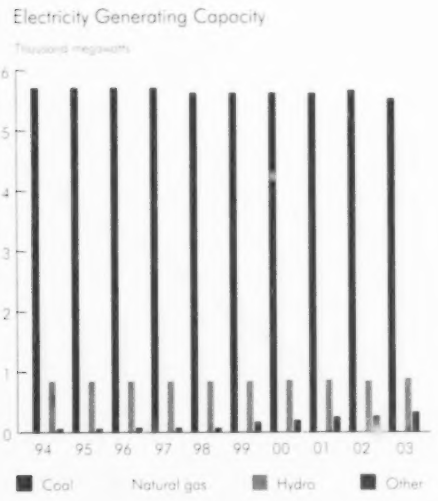
Solution Gas Flaring and Venting Volumes

	Flaring		Venting	
Year	million m^3	million cf	million m^3	million cf
2000	831	29 495	704	24 988
2001	624	22 148	600	21 296
2002	514	18 244	502	17 818
2003	408	14 481	435	15 440

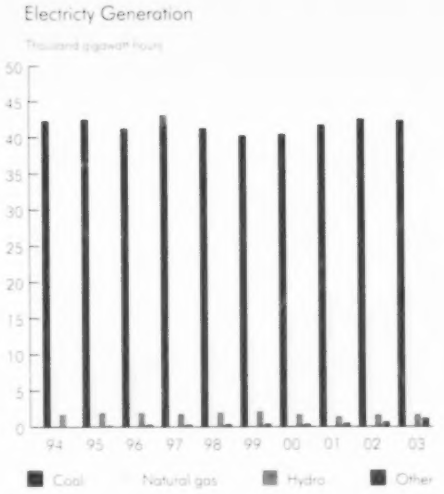
Progress continues to be made in reducing solution gas flaring and venting. However, the EUB is concerned about the volume of solution gas continuing to be vented and has initiated a number of measures designed to achieve a reduction. One of these measures, announced in *General Bulletin 2002-05*, requires that all existing

sources of vented gas greater than 500 m^3/d (18 thousand cf/d) be evaluated during 2003 and, if economic, be conserved by December 31, 2004.

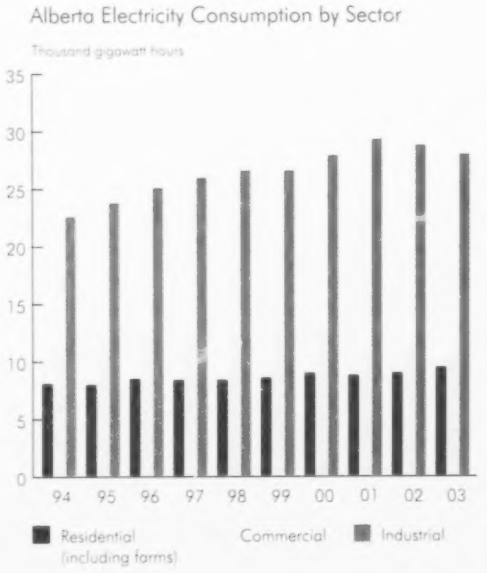
For more information on upstream petroleum industry flaring and venting, see *ST 2004-60B: Upstream Petroleum Industry Flaring and Venting Report*.



In 2003, Alberta's electric generating capacity increased to 11.6 gigawatts (GW). Most of the increase was due to the 17 per cent growth of gas-fired electricity capacity. Coal-fired electricity capacity decreased by just over 2 per cent, while hydroelectricity increased by almost 4 per cent over the same period. In 2003, wind plants contributed 171.8 megawatts (MW) of capacity, an increase of 147.5 MW since 1999 (1 GW= 1000 MW).

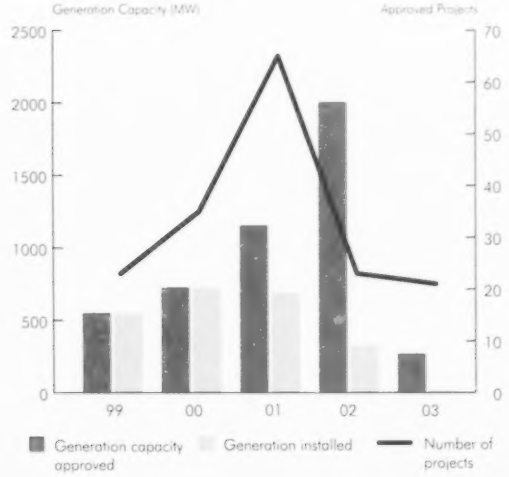


Alberta electric utilities generated 63 700 gigawatt hours (GWh) of electricity in 2003. For context, 1 GWh can power a million typical homes for a year. Coal-fired power plants generated 66 per cent of the province's electricity, while gas and hydro accounted for 29 and 3 per cent respectively. In 2003, wind plants contributed 374 GWh, an increase of 310 GWh since 1999.



Alberta's 2003 electric energy consumption decreased by less than 1 per cent to just below 49 000 GWh. The residential sector experienced a rise in demand of just over 5 per cent, the commercial sector remained static, while the industrial sector showed a decrease in demand of slightly less than 3 per cent. The industrial demand does not include electricity generated and used on site. If on-site generation and use are included, this sector showed an increase of just under 2 per cent.

Total Approved Electricity Generation Capacity and Number of Projects



The numbers do not include AES Calgary ULC's application to construct and operate a 525 MW gas-fired power plant located about 1.6 km east of Calgary city limits, as it has not yet met all conditions set out in Decision 2001-101.

In 2003, the EUB approved 262.1 MW of electricity generation capacity, compared to 1756.2 MW in 2002. The 2003 total is 40 per cent gas-fired generation capacity, 57 per cent wind-powered, and 3 per cent hydro. Although this equals 100 per cent, the EUB also approved 325 kilowatts (kW) of bio-gas generation capacity and 2 kW of solar generation capacity.

The graph above reports "generation installed" for the year it was approved, not the actual year it was installed. Not all generation approved by the EUB is subsequently built, and when it is, it may take several years to complete a project.

Of the 262.1 MW of generation capacity approved in 2003, only 18.6 MW was operating at the end of 2003. We anticipate that given enough time, most of the approved generation will be installed.

Green power is becoming more popular each year, with applicants finding new and innovative ways to fuel Alberta's power plants. In 2003, the EUB approved 150.7 MW of new wind-powered generation, 2 kW of solar-powered generation, and 7 MW of hydro generation.

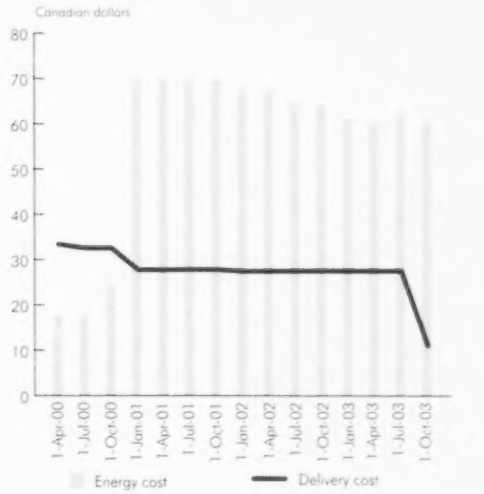
In 1984, the EUB approved the first wind power generator in Alberta, which was capable of generating just a few kilowatts. In contrast, in 2003 the EUB approved wind power plants with a 1.8 MW capacity.

Also in 2003, the EUB approved its first application for bio-gas generation, a 325 kW power plant fuelled by methane from pig manure. The manure is made into a watery mixture (slurry) and fed into a bio-digester, which ferments the mixture using anaerobic bacteria. The resulting by-products are methane gas, water useful for irrigation, and concentrated fertilizer. Seventy per cent of the water originally fed to the livestock is recaptured.

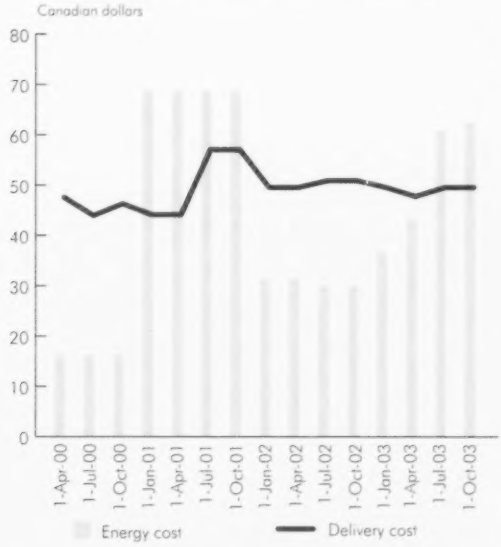
Late in 2003, the EUB received another bio-gas application for an approximately 1 MW bio-digester joint project of Highland Feeders and the Alberta Research Council. That project was approved early in 2004 and is scheduled to begin generating power in mid-2004.

The EUB's average processing time in 2003 for power plant applications was 10 days for smaller, simple applications and 99.7 days for larger, more complex projects.

Aquila Networks Canada (Alberta) Ltd. Energy and Delivery Costs



Atco Electric Ltd. Energy and Delivery Costs



These electric utilities graphs show energy and delivery costs of electricity.

Aquila and ATCO Electric customers paid different prices for electric energy because the two companies purchased electricity differently.

Aquila's regulated rate customers purchase energy from EPCOR. EPCOR, with the support of its Regulated Rate Tariff (RRT) customers, chose to limit its exposure to price fluctuations by hedging and investing in spot and monthly electricity contracts, which may offset each other if prices change. EPCOR's rates include a return margin to compensate it for the risk in providing a hedged rate.

For ATCO Electric, the energy costs were a pass-through of costs associated with procuring the electric energy. In late 2002, ATCO Electric received EUB approval to implement a monthly RRT based on hourly market prices. This system was designed to avoid accumulations of large surpluses or deficits by ATCO, which would require subsequent rate riders. Residential, farm, and irrigation customers saw this change on their bills beginning in April 2003. ATCO Electric is not allowed to make a profit on the supply cost of electricity, because there is no risk to ATCO Electric in this method of purchase.

Given the hourly changes to energy costs for ATCO Electric from April to December 2003, that portion of the information graphed was calculated using the first billing cycle of each month and averaging the three months in a quarter.

Legislative changes in mid-2003 now prohibit the use of such a flow-through mechanism, and so Direct Energy—the new retailer for customers served by ATCO—is negotiating with customer groups in early 2004 to determine a new procurement strategy.

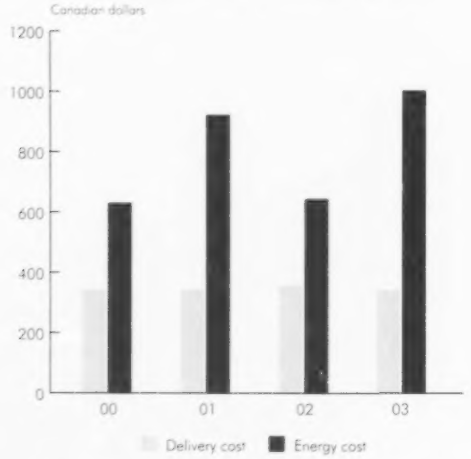
The EUB is responsible for establishing the regulated rate for customers within the service areas of Aquila and ATCO Electric. Effective January 1, 2004, the EUB also regulates EPCOR within the City of Edmonton and ENMAX within the City of Calgary. Other wire owners, including municipalities such as Red Deer, Lethbridge, and the Crowsnest Pass, which are served by ENMAX,

and Rural Electrification Associations are required to file their RRTs with the EUB for information purposes only.

Delivery rates recover the costs of transmission and distribution wires, local access fees, and other billing and administrative costs. These rates are set by the EUB through a public hearing process. As discussed earlier, the EUB's mandate is to balance the needs of customers and utility shareholders by establishing rates that allow the utility to recover only its fair costs of providing utility service, including a fair return on investment. The EUB must also ensure that customers receive safe and adequate service. Effective January 1, 2004, the EUB also regulates the distribution rates for ENMAX and EPCOR.

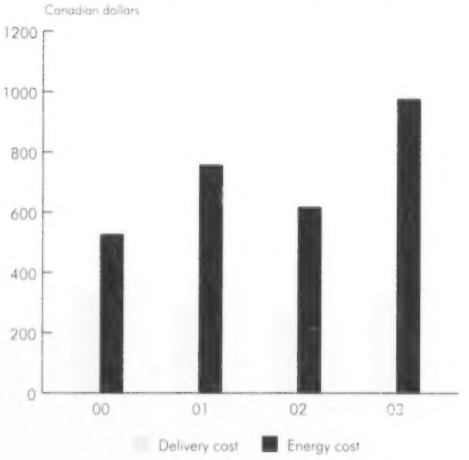
GAS UTILITIES

AltaGas Utilities Inc. Energy and Delivery Costs



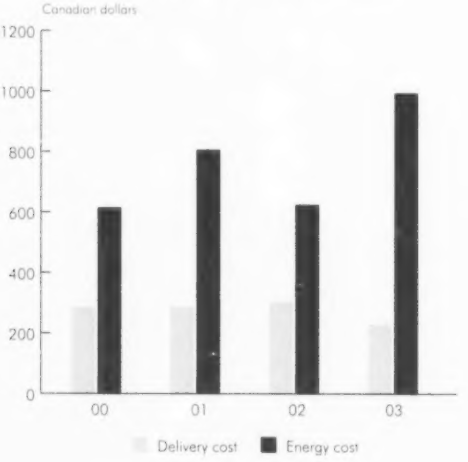
In *Decision 2002-042*, the Board approved a one-time refund to customers of AltaGas due to an amount paid to AltaGas when ATCO Gas North sold the Viking Kinsella gas fields. The refund for an average AltaGas residential customer using 135 GJ per year was $19.31. Due to the unique nature of the refund, it is not included on the graph.

ATCO Gas North Energy and Delivery Costs



In *Decision 2002-018*, the Board approved a one-time refund to customers of ATCO Gas North due to the sale of the Viking Kinsella gas fields by ATCO Gas North. The refund for an average ATCO Gas North residential customer using 135 GJ per year was $448.88. Due to the unique nature of the refund, it is not included on the graph.

ATCO Gas South Energy and Delivery Costs



These gas utilities graphs show energy and delivery costs of natural gas. The energy cost is a pass-through of the costs of natural gas and is called the Gas Cost Recovery Rate. Utilities are not allowed to make a profit on the supply cost of gas.

Customers of different gas utility companies pay different prices for natural gas because each company purchases the commodity using a different mix of monthly and daily purchases.

Starting in May 2004, Direct Energy will take over the regulated retail role respecting ATCO's natural gas customers. These customers will now pay a gas cost flow-through rate, which will recover the cost of gas, plus an administrative charge.

The delivery rates are designed to recover the costs of distributing natural gas to consumers. In setting these rates, the EUB must allow the utility to earn sufficient revenues to recover its costs, including a fair return on investment. This rate-making process involves balancing the needs of customers and the needs of utility shareholders. The EUB's overall mandate is to ensure that rates are just and reasonable and that customers receive safe and adequate service.

Terry Abel
Janet Abel
Cheryl-Ann Adolf
David Agnew
Sarshar Akbar
Shawn Allen
Alanda Allum
Ziad Amer
Joseph Amoruso
Roger Andersen
Walter Anderson
Dejan Andjelic
Laurence Andriashek
Douglas Anton
Darren Antos
Carolyn Arbeau
Norma Armstrong
Robert Armstrong
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Amy Atkinson
Manjit Atwal
Pami Atwal
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Greg Gilbertson
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Debra Giles
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Maureen Gold
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Joanne Greenslade
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Natalie Griffiths
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Benedict Grossberndt
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Amanda Hagen
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Grant Ireland
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Margo Jacobs
Yasmin Jamal
Rubina Jamal
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Dinh La
Line Lacasse
Marc Lachambre
Hanif Ladha
Chui Lai
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Shamil Lallani
Robert Lamb
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Cynthia Langlo
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Earl Leonard
Norman Leung
Karen Leussink
Frank Levstik
Teresa Lewis
Anita Lewis
Elizabeth L'Heureux
Louis Li
Chun Li
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